Docket No.: PA-0020 US

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Assistant Commissioner for Patents

**Box Patent Application** Washington, D.C. 20231

Transmitted herewith for filing is the patent application of:

Inventors: Thierry Sornasse, Benjamin Graeme Cocks, and Bharati Sanjawala

Title: GENES REGULATED BY HUMAN CYTOKINES

Enclosed are:

X Return postcard;

34 Pages of Specification (1-34);2 Pages of Claims (35-36);

1 Page of Abstract (37):

14 Pages of Tables (Table 1 (4 pages); Table 2 (1 page); Table 3 (1 page); Table 4 (8 pages);

200 Pages of Sequence Listing (Sequence Nos. 1-516);

Pages - Unexecuted Declaration and Power of Attorney; and

1 Page of Sequence Listing Statement and one (1) Computer-Readable Diskette.

Fee Calculation - The fee has been calculated as follows:

# CLAIMS AS FILED (fees computed under § 1.16)

Claims	Number Filed	Minus	Number Extra	Other Small Rate	Than Entity Fee	Basic Fee \$760.00
Total Claims	20	-20	0	x \$18	0	\$ 0
Indep. Claims	2	-3	0	x \$78	0	\$0
Multiple Dependent Claim(s), if any + \$260						\$

TOTAL FILING FEE

\$<u>760.00</u>

The Commissioner is hereby authorized to charge Incyte Pharmaceuticals, Inc. Deposit Account No. 09-0108 in the amount of \$760.00. The Commissioner is hereby authorized to charge any additional fees required under 37 C.F.R. § 1.16 and 1.17, or credit any overpayment to Incyte Pharmaceuticals, Inc. Deposit Account No. 09-0108. A duplicate of this sheet is enclosed.

Respectfully submitted.

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#### GENES REGULATED BY HUMAN CYTOKINES

#### FIELD OF THE INVENTION

The present invention relates to a a plurality of polynucleotides which may be used in detecting genes modulated in response to human cytokines. In particular, the present invention provides for the use of these polynucleotides in the diagnosis of conditions, disorders, and diseases associated with the immune system and immune response.

#### **BACKGROUND OF THE INVENTION**

Mammalian peripheral blood comprises cells of the erythroid, myeloid, and lymphoid lineages. (See, e.g., Rapaport (1987) Introduction to Hematology, Lipincott, Philadelphia PA; Jandi (1987) Blood: Textbook of Immunology, Little, Brown and Co., Boston MA; and Paul (1998) Fundamental Immunology (4<sup>th</sup> ed.), Raven Press, New York NY). Each of these lineages are derived from a pluripotent stem cell which, upon exposure to various molecules and other types of cells, differentiate into effector cells which migrate into the blood and other organs. These cells include red blood cells and platelets (erythroid), macrophages and granulocytes (myeloid), and T and B lymphocytes (lymphoid). The latter two groups of cells mediate immune responses to pathogens such as bacteria, parasites, and viruses.

Functional interaction of the cell types involved in immune responses involves transfer of signals via soluble messenger molecules known as cytokines. Both hematopoietic cells and non-hematopoietic cells produce cytokines which stimulate the activation, differentiation and proliferation of T cells, B cells, macrophages, and granulocytes during an active immune response. Cytokines bind to specific receptors expressed on cellular membranes and transduce a signal through the cell. Depending on the type of cytokine and the cell to which it binds, this signal initiates activation, differentiation, growth, and/or apoptosis (Aggarwal and Gutterman (1991) <u>Human Cytokines: Handbook for Basic and Clinical Research</u>, Blackwell, Oxford, UK).

T cells, which respond to and produce a variety of cytokines, are divided into two major groups, CD4<sup>+</sup> T helper (Th) cells, and CD8<sup>+</sup> cytotoxic T lymphocytes (CTL). Immune responses are primarily regulated by CD4<sup>+</sup> Th cells which fall into two subclasses based on the kinds of cytokines they secrete. Th1 cells secrete primarily IL-2 and IFN-γ, regulate the responses of CTLs, B cells, and macrophages, and orchestrate the removal of intracellular pathogens. In contrast, Th2 cells secrete primarily IL-4 and IL-10 and promote the development of certain antibody responses such as IgG1, IgA, and IgE, an excess of the latter triggering allergic responses. In addition, Th2 cells remove extracellular pathogens, which include various

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bacteria and parasites (Morel and Oriss (1998) Crit. Rev. Immunol. 18:275-303).

Further studies have shown that the Th1 cytokine response predominates in organ-specific autoimmune disorders such as insulin-dependent diabetes mellitus (IDDM), multiple sclerosis (MS), rheumatoid arthritis (RA), and Crohn's disease. A Th1 response also predominates in acute allograft rejection, eradication of tumors, and unexplained recurrent abortions. Th2 responses predominate in allergy and other atopic disorders, transplantation tolerance, chronic graft versus host disease (GVHD), and systemic autoimmune disease such as systemic lupus erythmatosus (Romangnani et al. (1997) Int. Arch. Allergy Immunol. 113:153-156).

Genes affected by these molecules may reasonably be expected to be markers of immune cell development, function, and activity. During immune responses, immune cells make a plethora of different cytokines that affect cellular functions. Until now, in vitro studies have focused on the effects of one or two cytokines on gene expression, but have not recreated the complex environment of multiple signals that occur in vivo by studying the effect of multiple cytokines simultaneously. This approach would provide a high throughput method of screening for a cytokine-related disease, assessing the efficacy of treatment for various disorders, conditions, and diseases, and providing information regarding novel genes up- or down-regulated by a complex mixture of cytokines that skew toward a particular immune response.

The present invention provides a method of high-throughput screening using a plurality of probes and purified polynucleotides in a diagnostic context as markers of various immune conditions, diseases, and disorders.

#### SUMMARY OF THE INVENTION

The present invention provides a composition comprising a plurality of polynucleotides wherein each polynucleotides comprises at least a fragment of a gene of SEQ ID NOs:1-516 as presented in the Sequence Listing. These polynucleotides are used to assess gene expression which is modulated by cytokines and is associated with an immune response or an immune system disorder. The invention also provides purified polynucleotides wherein each of the polynucleotides comprises at least a fragment of a gene selected from SEQ ID NOs:1-243 or a complement thereof whose expression is modulated by cytokines and is associated with an immune response or an immune system disorder. In one embodiment, each polynucleotide comprises at least a fragment of a gene selected from SEQ ID NOs:1-172 whose transcript level in a sample is altered in response to both pro-inflammatory cytokines such as IL-1β, IL-6, interferon (IFN)-γ, tumor necrosis factor (TNF)-α, IL-18, IL-12, IL-2, and IL-8, and anti-inflammatory cytokines such as IL-4, IL-10, IL-13, transforming growth factor (TGF)-β, IL-7, IL-3, IL-5, granulocyte-macrophage colony-stimulating factor (GM-CSF), granulocyte colony stimulating factor (G-CSF), leukemia inhibitory factor (LIF), and

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leptin. In another embodiment, each polynucleotide comprises at least a fragment of a gene selected from SEQ ID NOs:173-218 whose transcript level in a sample is altered in response to pro-inflammatory cytokines. In another embodiment, each polynucleotide comprises at least a fragment of a gene selected from SEQ ID NOs:219-243 whose transcript level in a sample is altered in response to anti-inflammatory cytokines. In one aspect, the polynucleotides of the composition are immobilized on a substrate.

The invention also provides a high throughput method for detecting a polynucleotide in a sample, the method comprising hybridizing the polynucleotide composition with at least one polynucleotide in the sample, thereby forming a hybridization complex; and detecting the hybridization complex, wherein the presence of the hybridization complex indicates the presence of the polynucleotide in the sample.

The invention also provides a high throughput method of screening a library of molecules or compounds to identify a ligand, the method comprising combining the polynucleotide composition with a library of molecules or compounds under conditions to allow specific binding; and detecting specific binding, thereby identifying a ligand. Libraries of molecules or compounds are selected from DNA molecules, RNA molecules, peptide nucleic acids (PNAs), mimetics, peptides, and proteins. The invention additionally provides a method for purifying a ligand, the method comprising combining a polynucleotide of the invention with a sample under conditions which allow specific binding, recovering the bound polynucleotide, and separating the polynucleotide from the ligand, thereby obtaining purified ligand.

The invention provides an expression vector containing a polynucleotide, a host cell containing the expression vector, and a method for producing a protein comprising culturing the host cell under conditions for the expression of protein and recovering the protein from the host cell culture.

The invention also provides a protein and a method for screening a library of molecules or compounds to identify at least one ligand which specifically binds the protein. The method comprises combining the protein or a portion thereof with the library of molecules or compounds under conditions to allow specific binding and detecting specific binding, thereby identifying a ligand which specifically binds the protein. Libraries of molecules or compounds are selected from DNA molecules, RNA molecules, PNAs, mimetics, peptides, proteins, agonists, antagonists, antibodies or their fragments, immunoglobulins, inhibitors, drug compounds, and pharmaceutical agents. The invention further provides for using a protein to purify a ligand. The method comprises combining the protein or a portion thereof with a sample under conditions to allow specific binding, recovering the bound protein, and separating the protein from the ligand, thereby obtaining purified ligand.

The invention also encompasses a method of screening a patient for an immune response, disorder, condition, or disease comprising obtaining a sample from the patient; contacting the sample with

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polynucleotides immobilized on a substrate under conditions to allow formation of a hybridization complex; detecting and quantifying hybridization complex to determine hybridization complex level; and comparing hybridization complex level with a standard, wherein a change in hybridization complex level relative to the standard is indicative of the immune disorder, condition, or disease. The immune disorder, condition, or disease includes pro-inflammatory disorders such as viral infections and organ-specific autoimmune disorders, including insulin-dependent diabetes mellitus, multiple sclerosis, rheumatoid arthritis, Crohn's disease and pemphigus vulgaris; and anti-inflammatory disorders such as bacterial and parasitic infections, allergies and other atopic disorders, transplantation tolerance, chronic graft versus host disease, and sytemic autoimmune disease including systemic lupus erythematosus.

#### DESCRIPTION OF THE TABLES

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The Sequence Listing is a compilation of polynucleotides obtained by sequencing clone inserts (isolates) of different cDNAs and identified by hybrid complex formation using the cDNAs as probes on a microarray. Each sequence is identified by a sequence identification number (SEQ ID NO) and by the Incyte clone ID from which it was obtained.

Table 1 lists polynucleotides differentially expressed in peripheral blood mononuclear cells (PBMCs) in response to both pro- and anti-inflammatory cytokines. Columns 1 and 2 show the SEQ ID NO and Incyte clone ID, respectively, for each polynucleotide. Columns 3 and 4 show the differential expression of the gene in PBMCs in response to pro-inflammatory and anti-inflammatory cytokines, respectively.

Table 2 lists polynucleotides differentially expressed in PBMCs in response to pro-inflammatory cytokines. Columns 1 and 2 show the SEQ ID NO and Incyte clone ID, respectively, for each polynucleotide. Columns 3 and 4 show the differential expression of the gene in PBMCs in response to pro-inflammatory and anti-inflammatory cytokines, respectively.

Table 3 lists polynucleotides differentially expressed in PBMCs in response to anti-inflammatory cytokines. Columns 1 and 2 show the SEQ ID NO and Incyte clone ID, respectively, for each polynucleotide. Columns 3 and 4 show the differential expression of the gene in PBMCs in response to pro-inflammatory and anti-inflammatory cytokines, respectively.

Table 4 lists polynucleotides differentially regulated in response to pro-inflammatory cytokines, anti-inflammatory cytokines, or both pro- and anti-inflammatory cytokines. Columns 1 and 2 show the SEQ ID

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NO and Incyte clone ID, respectively, for each polynucleotide. Columns 3 and 4 show the GenBank hit ID and corresponding GenBank 113 database, respectively, for the top hit identified by BLAST analysis. Column 5 shows the gene description for the polynucleotide. Columns 7 and 8 show the differential expression of the gene in PBMCs in response to pro-inflammatory and anti-inflammatory cytokines, respectively.

#### DETAILED DESCRIPTION OF THE INVENTION

Before the nucleic acid sequences and methods are presented, it is to be understood that this invention is not limited to the particular machines, methods, and materials described. Although particular embodiments are described, machines, methods, and materials similar or equivalent to these embodiments may be used to practice the invention. The preferred machines, methods, and materials set forth are not intended to limit the scope of the invention which is limited only by the appended claims.

The singular forms "a", "an", and "the" include plural reference unless the context clearly dictates otherwise. All technical and scientific terms have the meanings commonly understood by one of ordinary skill in the art. All publications are incorporated by reference for the purpose of describing and disclosing the cell lines, vectors, and methodologies which are presented and which might be used in connection with the invention. Nothing in the specification is to be construed as an admission that the invention is not entitled to antedate such disclosure by virtue of prior invention.

#### **Definitions**

"Amplification" refers to the production of additional copies of a nucleotide sequence and is carried out using polymerase chain reaction (PCR) technologies well known in the art.

"Complementary" describes the relationship between two single-stranded nucleotide sequences that annual by base-pairing (5'-A-G-T-3' pairs with its complement 3'-T-C-A-5').

"Cytokine", as used herein, refers to a cytokine, chemokine, cytokine-like molecule, or other molecule which elicits an immune response, and includes interleukin (IL)-1β, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-10, IL-12, IL-13, IL-18, interferon (IFN)-γ, tumor necrosis factor (TNF)-α, transforming growth factor (TGF)-β, granulocyte-macrophage colony-stimulating factor (GM-CSF), granulocyte colony-stimulatory factor (G-CSF), leukemia-inhibitory factor (LIF), and leptin. "Pro-inflammatory" cytokines include IL-1β, IL-6, IFN-γ, TNF-α, IL-18, IL-12, IL-2, and IL-8. "Anti-inflammatory" cytokines include IL-4, IL-10, IL-13, TGF-β, IL-7, IL-3, IL-5, GM-CSF, G-CSF, LIF, and leptin.

"E-value" refers to the statistical probability that a match between two sequences occurred by chance.

"Fragment" refers to an Incyte clone or any part of a polynucleotide which retains a usable, functional characteristic. Useful fragments may be used in hybridization technologies, to identify or purify

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ligands, or in regulation of replication, transcription or translation.

"Ligand" refers to any molecule, agent, or compound which will bind specifically to a complementary site on a polynucleotide or protein. Such ligands stabilize or modulate the activity of polynucleotides or proteins of the invention and may be composed of at least one of the following: inorganic and organic substances including nucleic acids, proteins, carbohydrates, fats, and lipids.

"Microarray" refers to an ordered arrangement of hybridizable elements on a substrate. The elements are arranged so that there are a "plurality" of elements, preferably more than one element, more preferably at least 100 elements, and even more preferably at least 1,000 elements, and most preferably at least 10,000 on a 1 cm<sup>2</sup> substrate. The maximum number of elements is unlimited, but is at least 100,000 elements.

Furthermore, the hybridization signal from each of the elements is individually distinguishable. In the present and preferred embodiment, the elements comprise polynucleotide probes.

"Oligonucleotide" is substantially equivalent to the terms amplimer, primer, oligomer, element, target, and probe and is preferably single stranded.

"Peptide nucleic acid" (PNA) refers to a DNA mimic in which nucleotide bases are attached to a pseudopeptide backbone to increase stability. PNAs, also designated antigene agents, can prevent gene expression by hybridizing to complementary messenger RNA.

"Polynucleotide" refers to a nucleic acid, oligonucleotide, polynucleotide, or any fragment thereof. It may be DNA or RNA of genomic or synthetic origin, and double-stranded or single-stranded.

"Portion" refers to any part of a protein used for any purpose, but especially for the screening of a library of molecules or compounds to identify those which specifically bind to that portion and for producing antibodies.

"Probe" refers to a probe polynucleotide capable of hybridizing with a target polynucleotide to form a probe/target complex. A "target" refers to a chain of nucleotides to which a probe can hybridize by base pairing. In most instances, the sequences of the probe and target will be complementary (no mismatches) when aligned. In some instances, there may be up to a 10% mismatch.

"Protein" refers to an amino acid sequence, peptide, polypeptide, or protein of either natural or synthetic origin. The protein is not limited to the complete, endogenous amino acid sequence and may be a fragment, epitope, variant, or derivative of a protein.

"Purified" refers to any molecules or compounds that are removed from their natural environment and are isolated or separated, and are at least about 60% free, preferably about 75% free, and most preferably about 90% free, from other components with which they are naturally associated.

"Sample" is used in its broadest sense. A sample may comprise a bodily fluid; an extract from a cell,

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chromosome, organelle, or membrane isolated from a cell; genomic DNA, RNA, or cDNA in solution or bound to a substrate; a cell; a tissue; a tissue print; and the like.

"Specific binding" refers to a specific interaction between two molecules which is dependent upon a particular structure or molecular side groups. For example, the hydrogen bonding between two single stranded nucleic acids or the binding between a protein/epitope and an agonist, antagonist, or antibody.

"Substrate" refers to any rigid or semi-rigid support to which molecules or compounds are bound and includes membranes, filters, chips, slides, wafers, fibers, magnetic or nonmagnetic beads, gels, capillaries or other tubing, plates, polymers, and microparticles with a variety of surface forms including wells, trenches, pins, channels and pores.

#### The Invention

The present invention provides a composition comprising a plurality of polynucleotide probes, wherein each polynucleotide comprises at least a fragment of a gene whose transcript is modulated by human cytokines. The plurality of probes comprise at least a fragment of the identified and novel polynucleotide sequences, SEQ ID NOs:1-516, as presented in the Sequence Listing. Novel polynucleotides were identified using the composition, wherein each polynucleotide comprises at least a fragment of a gene selected from SEQ ID NOs:1-243 whose transcript is modulated by human cytokines. SEQ ID NOs:1-172 comprise at least a fragment of a gene whose transcript level in a sample is modulated in response to both pro-inflammatory cytokines and anti-inflammatory cytokines as shown in Table 1. SEQ ID NOs:173-218 comprise at least a fragment of a gene whose transcript level in a sample is modulated in response to pro-inflammatory cytokines as shown in Table 2. SEQ ID NOs:219-243 comprise at least a fragment of a gene whose transcript level in a sample is modulated in response to anti-inflammatory cytokines as shown in Table 3.

In a particular embodiment, the probes are arranged on a substrate, preferably a microarray. The microarray can be used for large scale genetic or gene expression analysis of a large number of targets. The microarray can also be used in the diagnosis of diseases and in the monitoring of treatments where altered gene expression is associated with an immune response involving an allergy, a bacterial, viral, or parasitic infection, and the like. Further, the microarray can be employed to investigate an individual's predisposition to an autoimmune disorder including insulin-dependent diabetes mellitus, multiple sclerosis, rheumatoid arthritis, Crohn's disease, systemic lupus erythematosus, and the like.

When the composition of the invention is employed as probes on a microarray, the probes are organized in an ordered fashion so that each element is present at a specified location on the substrate. Because the probes are at specified locations on the substrate, the hybridization patterns and intensities, which together create a unique expression profile, can be interpreted in terms of expression levels of particular

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genes and can be correlated with a particular metabolic process, condition, disorder, disease, stage of disease, or treatment.

The composition comprising a plurality of probes can also be used to identify or purify a molecule or compound which specifically binds to at least one of the probes. These molecules may be identified from a sample or in high throughput mode from a library of mRNAs, cDNAs, genomic fragments, and the like. Typically, samples or libraries will include targets of diagnostic or therapeutic interest. If nucleic acids in a particular sample enhance the hybridization background, it may be advantageous to remove these nucleic acids. One method for removing additional nucleic acids is by hybridizing the sample with immobilized probes and washing away those nucleic acids that do not form hybridization complexes. At a later point, hybridization complexes can be dissociated, thereby releasing the purified targets.

#### Method for Selecting Polynucleotides

The polynucleotides which represent genes modulated by cytokines were identified by the following method. Samples were prepared from peripheral blood mononuclear cells (PBMCs) treated with proinflammatory or anti-inflammatory cytokines over a defined time course. Gene expression patterns between cytokine-treated and untreated cell samples were compared. The comparisons allowed the identification of genes either upregulated or downregulated in response to each cytokine group and identification of genes either upregulated or downregulated in response to both cytokine groups. SEQ ID NOs:1-516 represent genes modulated by cytokines as identified by differential expression of polynucleotide probes on the substrate. Since polynucleotides are identified solely based on expression levels, it is not essential to know\_a priori the function of the particular gene. The overall pattern of expression is especially useful in characterizing expression patterns associated with an immune response due to an infection or an autoimmune disorder.

#### Polynucleotides

The polynucleotides of the invention can be genomic DNA, cDNA, mRNA, or any RNA-like or DNA-like material such as peptide nucleic acids, branched DNAs and the like. Polynucleotide probes can be sense or antisense strand. Where targets are double stranded, probes may be either sense or antisense strands. Where targets are single stranded, probes are complementary single strands.

In one embodiment, polynucleotides are cDNAs. In another embodiment, polynucleotides are plasmids. In the case of plasmids, the sequence of interest is the cDNA insert. The size of the cDNAs may vary and is preferably from 50 to 10,000 nucleotides, more preferably from 50 to 4000 nucleotides, and most preferably about 400 nucleotides in length.

Polynucleotides can be prepared by a variety of synthetic or enzymatic methods well known in the

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art. Polynucleotides can be synthesized, in whole or in part, using chemical methods well known in the art (Caruthers et al. (1980) Nucleic Acids Symp. Ser. (7):215-233). Alternatively, polynucleotides can be produced enzymatically or recombinantly, by in vitro or in vivo transcription.

Nucleotide analogs can be incorporated into polynucleotide probes by methods well known in the art. The only requirement is that the incorporated nucleotide analogs of the probe must base pair with target nucleotides. For example, certain guanine nucleotides can be substituted with hypoxanthine which base pairs with cytosine residues. However, these base pairs are less stable than those between guanine and cytosine. Alternatively, adenine nucleotides can be substituted with 2, 6-diaminopurine which can form stronger base pairs with thymidine than those between adenine and thymidine.

Additionally, polynucleotides can include nucleotides that have been derivatized chemically or enzymatically. Typical chemical modifications include derivatization with acyl, alkyl, aryl or amino groups.

Polynucleotides probes can be synthesized on a substrate. Synthesis on the surface of a substrate may be accomplished using a chemical coupling procedure and a piezoelectric printing apparatus as described by Baldeschweiler <u>et al.</u> (PCT publication WO95/251116). Alternatively, the probe can be synthesized on a substrate surface using a self-addressable electronic device that controls when reagents are added as described by Heller et al. (USPN 5,605,662; incorporated herein by reference).

Complementary DNA (cDNA) can be arranged and then immobilized on a substrate. Probes can be immobilized by covalent means such as by chemical bonding procedures or UV. In one such method, a cDNA is bound to a glass surface which has been modified to contain epoxide or aldehyde groups. In another case, a cDNA probe is placed on a polylysine coated surface and then UV cross-linked as described by Shalon et al. (WO95/35505). In yet another method, a DNA is actively transported from a solution to a given position on a substrate by electrical means (Heller et al., supra). Alternatively, probes, clones, plasmids or cells can be arranged on a filter. In the latter case, cells are lysed, proteins and cellular components degraded, and the DNA is coupled to the filter by UV cross-linking.

Furthermore, probes do not have to be directly bound to the substrate, but rather can be bound to the substrate through a linker group. The linker groups are typically about 6 to 50 atoms long to provide exposure of the attached probe. Preferred linker groups include ethylene glycol oligomers, diamines, diacids and the like. Reactive groups on the substrate surface react with a terminal group of the linker to bind the linker to the substrate. The other terminus of the linker is then bound to the probe.

Probes can be attached to a substrate by sequentially dispensing reagents for probe synthesis on the substrate surface or by dispensing preformed DNA fragments to the substrate surface. Typical dispensers include a micropipette delivering solution to the substrate with a robotic system to control the position of the

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micropipette with respect to the substrate. There can be a multiplicity of dispensers so that reagents can be delivered to the reaction regions efficiently.

#### Uses of the Polynucleotides

The polynucleotide probes of the present invention may be used for a variety of purposes. For example, the composition of the invention may be used as probes on a microarray. The microarray can be used in high-throughput methods such as for detecting a related polynucleotide in a sample, screening libraries of molecules or compounds to identify a ligand, or diagnosing a particular condition, disease, or disorder associated with an immune response. Alternatively, a polynucleotide complementary to a given sequence of the sequence listing can inhibit or inactivate a therapeutically relevant gene related to the polynucleotide.

#### Array Analysis

#### I. Sample Preparation

In order to conduct sample analysis, a sample containing targets is provided. The samples can be any sample containing targets and obtained from any bodily fluid (blood, urine, saliva, phlegm, gastric juices, etc.), cultured cells, biopsies, or other tissue or forensic preparations.

DNA or RNA can be isolated from a sample according to any of a number of methods well known to those of skill in the art. For example, methods of purification of nucleic acids are described in Tijssen (1993) <a href="Laboratory Techniques"><u>Laboratory Techniques in Biochemistry and Molecular Biology: Hybridization With Nucleic Acid Probes, Part I. Theory and Nucleic Acid Preparation, Elsevier Science, New York NY). In one case, total RNA is isolated using TRIZOL reagent (Life Technologies, Gaithersburg MD), and mRNA is isolated using oligo d(T) column chromatography or glass beads. In one alternative, when targets are derived from an mRNA, targets can be a DNA reverse transcribed from that mRNA, an RNA transcribed from that DNA, a DNA amplified from that DNA, an RNA transcribed from the amplified DNA, and the like. When target is derived from DNA, target can be RNA reverse transcribed from that DNA, or DNA amplified from that DNA. In yet another alternative, targets are prepared by more than one method.</u>

When targets in the sample are amplified it is desirable to maintain their relative abundances, including low abundance transcripts. Total mRNA can be amplified by reverse transcription using a reverse transcriptase and a primer consisting of oligo d(T) and a sequence encoding the phage T7 promoter to provide a single stranded DNA template. The second DNA strand is polymerized using a DNA polymerase and a RNAse which assists in breaking up the DNA/RNA hybrid. After synthesis of the double stranded DNA, T7 RNA polymerase can be added, and RNA transcribed from the second DNA strand template as described by Van Gelder et al. (USPN 5,545,522; incorporated herein by reference). RNA can be amplified in vitro, in situ

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or in vivo (See Eberwine, USPN 5,514,545; incorporated herein by reference).

It is also advantageous to include quantitation controls to assure that amplification and labeling procedures do not change the true abundance of targets in a sample. For this purpose, a sample is spiked with a known amount of a control target, and the composition of probes includes reference probes which specifically hybridize with the control targets. After hybridization and processing, the hybridization signals should reflect accurately the amounts of control target added to the sample.

Prior to hybridization, it may be desirable to fragment the targets. Fragmentation improves hybridization by minimizing secondary structure and cross-hybridization among target nucleic acids in the sample or with noncomplementary probes. Fragmentation can be performed by mechanical or chemical means.

Targets may be labeled with one or more labeling moieties to allow for detection and quantitation of hybridized probe/target complexes. The labeling moieties can include compositions that can be detected by spectroscopic, photochemical, biochemical, bioelectronic, immunochemical, electrical, optical or chemical means. The labeling moieties include radioisotopes, such as <sup>32</sup>P, <sup>33</sup>P or <sup>35</sup>S, chemiluminescent compounds, labeled binding proteins, heavy metal atoms, spectroscopic markers such as fluorescent markers and dyes, magnetic labels, linked enzymes, mass spectrometry tags, spin labels, electron transfer donors and acceptors, and the like. Exemplary dyes include quinoline dyes, triarylmethane dyes, phthaleins, azo dyes, cyanine dyes, and the like. Preferably, fluorescent markers absorb light above about 300 nm, preferably above 400 nm, and usually emit light at wavelengths at least greater than 10 nm above the wavelength of the light absorbed. Preferred fluorescent markers include fluorescein, phycoerythrin, rhodamine, lissamine, Cy3, and Cy5.

Labeling can be carried out during an amplification reaction, such as by polymerase chain reaction, nick translation, or <u>in vitro</u> transcription reactions. Label can also be incorporated after or without an amplification step, such as by 5' or 3'-end-labeling reactions. In 5'-end labeling, the 5' end of the target is dephosphorylated by alkaline phosphatase and then phosphorylated by T4 polynucleotide kinase in the presence of  $[\gamma^{-32}P]ATP$ . In 3'-end labeling, the label is incorporated by using either terminal transferase or by incubating the target with a labeled oligonucleotide in the presence of T4 RNA ligase.

Alternatively, the labeling moiety can be incorporated after hybridization once a probe/target complex has formed. In one case, biotin is first incorporated during an amplification step as described above. After the hybridization reaction, unbound nucleic acids are rinsed away so that the only biotin remaining bound to the substrate is that attached to targets that are hybridized to probes. Then, an avidin-conjugated fluorophore, such as avidin-phycoerythrin, that binds with high affinity to biotin is added. In another case,

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the labeling moiety is incorporated by intercalation into preformed target/probe complexes. In this case, an intercalating dye such as a psoralen-linked dye can be employed.

## II. Hybridization and Detection

Hybridization allows a denatured polynucleotide probe and a denatured complementary target to form a stable duplex through base pairing. Hybridization methods are well known to those skilled in the art. (See, e.g., Ausubel, et al. (1997) Short Protocols in Molecular Biology, John Wiley & Sons, New York NY, Units 2.8-2.11, 3.18-3.19 and 4-6-4.9.) Conditions can be selected for hybridization where completely complementary probe and target can hybridize, i.e., each base pair must interact with its complementary base pair. Alternatively, conditions can be selected where probe and target have mismatches of up to about 10% but are still able to hybridize. Suitable conditions can be selected, for example, by varying the concentrations of salt in the prehybridization, hybridization, and wash solutions or by varying the hybridization and wash temperatures. With some substrates, the temperature can be decreased by adding formamide to the prehybridization and hybridization solutions.

Hybridization can be performed at low stringency with buffers, such as 5xSSC with 1% sodium dodecyl sulfate (SDS) at 60°C, which permits hybridization between probe and target sequences that contain some mismatches to form probe/target complexes. Subsequent washes are performed at higher stringency with buffers such as 0.2xSSC with 0.1% SDS at either 45°C (medium stringency) or 68°C (high stringency), to maintain hybridization of only those probe/target complexes that contain completely complementary sequences. Background signals can be reduced by the use of detergents such as SDS, Sarcosyl, or Triton X-100, or a blocking agent, such as salmon sperm DNA.

Hybridization specificity can be evaluated by comparing the hybridization of control probe to target sequences that are added to a sample in a known amount. The control probe may have one or more sequence mismatches compared with the corresponding target. In this manner, it is possible to evaluate whether only complementary targets are hybridizing to the probes or whether mismatched hybrid duplexes are forming.

Hybridization reactions can be performed in absolute or differential hybridization formats. In the absolute hybridization format, targets from one sample are hybridized to microarray elements, and signals detected after hybridization complexes form. Signal strength correlates with target levels in a sample. In the differential hybridization format, differential expression of a set of genes in two biological samples is analyzed. Targets from the two samples are prepared and labeled with different labeling moieties. A mixture of the two labeled targets is hybridized to the microarray elements, and signals are examined under conditions in which the emissions from the two different labels are individually detectable. Probes in the microarray that are hybridized to substantially equal numbers of targets derived from both biological samples give a distinct

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combined fluorescence (Shalon et al., PCT publication WO95/35505). In a preferred embodiment, the labels are fluorescent labels with distinguishable emission spectra, such as a lissamine conjugated nucleotide analog and a fluorescein conjugated nucleotide analog. In another embodiment Cy3 and Cy5 fluorophores (Amersham Pharmacia Biotech, Piscataway NJ) are employed.

After hybridization, the microarray is washed to remove nonhybridized polynucleotides, and complex formation between the hybridizable array elements and the targets is examined. Methods for detecting complex formation are well known to those skilled in the art. In a preferred embodiment, the targets are labeled with a fluorescent label, and measurement of levels and patterns of fluorescence indicative of complex formation is accomplished by fluorescence microscopy, preferably confocal fluorescence microscopy. An argon ion laser excites the fluorescent label, emissions are directed to a photomultiplier, and the amount of emitted light is detected and quantitated. The detected signal should be proportional to the amount of probe/target complexes at each position of the microarray. The fluorescence microscope can be associated with a computer-driven scanner device to generate a quantitative two-dimensional image of hybridization intensity. The scanned image is examined to determine the abundance/expression level of hybridized target.

Typically, microarray fluorescence intensities can be normalized to take into account variations in hybridization intensities when more than one microarray is used under similar test conditions. In a preferred embodiment, individual polynucleotide probe/target complex hybridization intensities are normalized using the intensities derived from internal normalization controls contained on each microarray.

#### III. Screening Assays

Probes may be used to screen a library of molecules or compounds for specific binding affinity. The libraries may be DNA molecules, RNA molecules, PNAs, peptides, proteins such as transcription factors, enhancers, repressors, and other organic or inorganic ligands which regulate activities such as replication, transcription, or translation of polynucleotides in the biological system. The assay involves combining the probe with the library of molecules or compounds under conditions allowing specific binding, and detecting specific binding of a ligand to the probe.

#### IV. Purification of Ligand

Probes may be used to purify a ligand from a sample. A method for using a probe to purify a ligand would involve combining the probe with a sample under conditions to allow specific binding, detecting specific binding, recovering the bound protein, and using an appropriate agent to separate the polynucleotide from the purified ligand.

# Protein Production and Uses

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#### I. Expression of Encoded Proteins

Polynucleotides of the invention may be cloned into a vector and used to express the encoded protein or portions thereof in host cells. The polynucleotides can be engineered by such methods as DNA shuffling (Stemmer and Crameri, USPN 5,830,721 incorporated by reference herein) and site-directed mutagenesis to create new restriction sites, alter glycosylation patterns, change codon preference to increase expression in a particular host, produce splice variants, extend half-life, and the like. The expression vector may contain transcriptional and translational control elements (promoters, enhancers, specific initiation signals, and 3' polyadenylation sequence) from various sources which have been selected for their efficiency in a particular host. The vector, polynucleotide, and regulatory elements are combined using in vitro recombinant DNA techniques, synthetic techniques, and/or in vivo genetic recombination techniques well known in the art and described in Sambrook (supra, ch. 4, 8, 16 and 17).

A variety of host systems may be transformed with an expression vector. These include, but are not limited to, bacteria transformed with recombinant bacteriophage, plasmid, or cosmid DNA expression vectors; yeast transformed with yeast expression vectors; insect cell systems transformed with baculovirus expression vectors; plant cell systems transformed with expression vectors containing viral and/or bacterial elements; or animal cell systems (Ausubel supra, Unit 16). For example, an adenovirus transcription/translation complex may be utilized in mammalian cells. After sequences are ligated into the E1 or E3 region of the viral genome, infective virus are used to transform and express the protein in host cells. The Rous sarcoma virus enhancer or SV40 or EBV-based vectors may also be used for high-level protein expression.

Routine cloning, subcloning, and propagation of polynucleotides can be achieved using the multifunctional PBLUESCRIPT vector (Stratagene, La Jolla CA) or PSPORT1 plasmid (Life Technologies). Introduction of a nucleic acid sequence into the multiple cloning site of these vectors disrupts the *lacZ* gene and allows colorimetric screening for transformed bacteria. In addition, these vectors may be useful for in vitro transcription, dideoxy sequencing, single strand rescue with helper phage, and creation of nested deletions in the cloned sequence.

For long term production of recombinant proteins, the vector can be stably transformed into cell lines along with a selectable or visible marker gene on the same or on a separate vector. After transformation, cells are allowed to grow for about 1 to 2 days in enriched media and then are transferred to selective media. Selectable markers, such as antimetabolite, antibiotic, or herbicide resistance genes, confer resistance to the relevant selective agent and allow growth and recovery of cells which successfully express the introduced sequences. Resistant clones identified either by survival on selective media or by the expression of visible

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markers, such as anthocyanins, green fluorescent protein (GFP), ß glucuronidase, luciferase, and the like, may be propagated using culture techniques. Visible markers are also used to quantify the amount of protein expressed by the introduced genes. Verification that the host cell contains the desired polynucleotide is based on DNA-DNA or DNA-RNA hybridizations or PCR amplification techniques.

The host cell may be chosen for its ability to modify a recombinant protein in a desired fashion. Such modifications include acetylation, carboxylation, glycosylation, phosphorylation, lipidation, acylation and the like. Post-translational processing which cleaves a "prepro" form may also be used to specify protein targeting, folding, and/or activity. Different host cells available from the American Type Culture Collection (Manassas VA) which have specific cellular machinery and characteristic mechanisms for post-translational activities may be chosen to ensure the correct modification and processing of the recombinant protein.

#### II. Recovery of Proteins from Cell Culture

Heterologous moieties engineered into a vector for ease of purification include glutathione S-transferase (GST), calmodulin binding peptide (CBP), 6-His, FLAG, MYC, and the like. GST, CBP, and 6-His are purified using commercially available affinity matrices such as immobilized glutathione, calmodulin, and metal-chelate resins, respectively. FLAG and MYC are purified using commercially available monoclonal and polyclonal antibodies. A proteolytic cleavage site may be located between the desired protein sequence and the heterologous moiety for ease of separation following purification. Methods for recombinant protein expression and purification are discussed in Ausubel (supra, unit 16) and are commercially available.

#### III. Screening Assays

A protein or a portion thereof transcribed and translated from a probe may be used to screen libraries of molecules or compounds in any of a variety of screening assays. The protein or portion thereof may be free in solution, affixed to an abiotic or biotic substrate, borne on a cell surface, or located intracellularly. Specific binding between the protein and a ligand may be measured. Depending on the kind of library being screened, the assay may be used to identify DNA, RNA, PNAs, agonists, antagonists, antibodies, immunoglobulins, inhibitors, mimetics, peptides, proteins, drugs, or any other ligand, which specifically binds the protein. One method for high throughput screening using very small assay volumes and very small amounts of test compound is described by Burbaum et al. (USPN 5,876,946; incorporated herein by reference) which screens large numbers of molecules for enzyme inhibition or receptor binding.

The protein may be used in screening assays of phagemid or B-lymphocyte immunoglobulin libraries to identify antibodies having the desired specificity. Numerous protocols for competitive binding or immunoassays using either polyclonal or monoclonal antibodies with established specificities are well known

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in the art. Such immunoassays typically involve the measurement of complex formation between the protein and its specific antibody. The method may employ a two-site, monoclonal-based immunoassay utilizing monoclonal antibodies reactive to two non-interfering epitopes or a competitive binding assay (Pound (1998) Immunochemical Protocols, Humana Press, Totowa NJ).

#### 5 IV. Purification of a Ligand

The encoded protein or a portion thereof may be used to purify a ligand from a sample. A method for using a protein or a portion thereof to purify a ligand would involve combining the protein or a portion thereof with a sample under conditions to allow specific binding, detecting specific binding between the protein and ligand, recovering the bound protein, and using an appropriate agent to separate the protein from the purified ligand.

#### V. Chemical Synthesis of Peptides

Proteins or portions thereof may be produced not only by recombinant methods, but also by using chemical methods well known in the art. Solid phase peptide synthesis may be carried out in a batchwise or continuous flow process which sequentially adds α-amino and side chain-protected amino acid residues to an insoluble polymeric support via a linker group. A linker group such as methylamine-derivatized polyethylene glycol is attached to poly(styrene-co-divinylbenzene) to form the support resin. The amino acid residues are  $N-\alpha$ -protected by acid labile Boc (t-butyloxycarbonyl) or base-labile Fmoc (9-fluorenylmethoxycarbonyl). The carboxyl group of the protected amino acid is coupled to the amine of the linker group to anchor the residue to the solid phase support resin. Trifluoroacetic acid or piperidine are used to remove the protecting group in the case of Boc or Fmoc, respectively. Each additional amino acid is added to the anchored residue using a coupling agent or pre-activated amino acid derivative, and the resin is washed. The full length peptide is synthesized by sequential deprotection, coupling of derivitized amino acids, and washing with dichloromethane and/or N, N-dimethylformamide. The peptide is cleaved between the peptide carboxy terminus and the linker group to yield a peptide acid or amide. (Novabiochem 1997/98 Catalog and Peptide Synthesis Handbook, San Diego CA, pp. S1-S20). Automated synthesis may also be carried out on machines such as the ABI 431A peptide synthesizer (PE Biosystems, Foster City CA). A protein or portion thereof may be substantially purified by preparative high performance liquid chromatography and its composition confirmed by amino acid analysis or by sequencing (Creighton (1984) Proteins, Structures and Molecular Properties, WH Freeman, New York NY).

# Preparation of Antibodies

Various hosts including goats, rabbits, rats, mice, humans, and others may be immunized by injection with protein or any portion thereof. Adjuvants such as Freund's, mineral gels, and surface active substances

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such as lysolecithin, pluronic polyols, polyanions, peptides, oil emulsions, keyhole limpet hemacyanin (KLH), and dinitrophenol may be used to increase immunological response. The oligopeptide, peptide, or portion of protein used to induce antibodies should consist of at least about five amino acids, more preferably ten amino acids, which are identical to a portion of the natural protein. Oligonucleotides may be fused with proteins such as KLH in order to produce antibodies to the chimeric molecule.

Monoclonal antibodies may be prepared using any technique which provides for the production of antibodies by continuous cell lines in culture. These include, but are not limited to, the hybridoma technique, the human B-cell hybridoma technique, and the EBV-hybridoma technique. (Kohler et al. (1975) Nature 256:495-497; Kozbor et al. (1985) J. Immunol. Methods 81:31-42; Cote et al. (1983) Proc. Natl. Acad. Sci. 80:2026-2030; and Cole et al. (1984) Mol. Cell Biol. 62:109-120.)

Alternatively, techniques described for the production of single chain antibodies may be adapted, using methods known in the art, to produce epitope specific single chain antibodies. Antibody fragments which contain specific binding sites for epitopes of the mammalian protein may also be generated. For example, such fragments include, but are not limited to, F(ab')2 fragments produced by pepsin digestion of the antibody molecule and Fab fragments generated by reducing the disulfide bridges of the F(ab')2 fragments. Alternatively, Fab expression libraries may be constructed to allow rapid and easy identification of monoclonal Fab fragments with the desired specificity. (Huse et al. (1989) Science 246:1275-1281.) Labeling of Molecules for Assay

A wide variety of labeling moieties and conjugation techniques are known by those skilled in the art and may be used in various nucleic acid, amino acid, and antibody assays. Synthesis of labeled molecules may be achieved using Promega (Madison WI) or Amersham Pharmacia Biotech kits for incorporation of a labeled nucleotide such as <sup>32</sup>P-dCTP, Cy3-dCTP or Cy5-dCTP or amino acid such as <sup>35</sup>S-methionine.

Nucleotides and amino acids may be directly labeled with a variety of substances including fluorescent, chemiluminescent, or chromogenic agents, and the like, by chemical conjugation to amines, thiols and other groups present in the molecules using reagents such as BIODIPY or FITC (Molecular Probes, Eugene OR).

#### **Diagnostics**

The polynucleotides, or fragments thereof, may be used to detect and quantify altered gene expression; absence, presence, or excess expression of mRNAs; or to monitor mRNA levels during therapeutic intervention. Conditions, diseases or disorders associated with altered expression include proinflammatory disorders such as organ-specific autoimmune disorders including insulin-dependent diabetes mellitus, multiple sclerosis, rheumatoid arthritis, Crohn's disease and pemphigus vulgaris; and anti-inflammatory disorders including allergies and other atopic disorders, transplantation tolerance, chronic graft

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versus host disease, and sytemic autoimmune diseases such as systemic lupus erythematosus. In addition to disorders, the polynucleotides are useful for monitoring the progression of infectious diseases including, but not limited to, tuberculosis, leprosy, Leishmania, and viral infections such as HIV infection. These polynucleotides can also be utilized as markers of treatment efficacy against the diseases noted above and other immune disorders, conditions, and diseases over a period ranging from several days to months. The diagnostic assay may use hybridization or amplification technology to compare gene expression in a biological sample from a patient to standard samples in order to detect altered gene expression. Qualitative or quantitative methods for this comparison are well known in the art.

For example, the polynucleotide may be labeled by standard methods and added to a biological sample from a patient under conditions for the formation of hybridization complexes. After an incubation period, the sample is washed and the amount of label (or signal) associated with hybridization complexes, is quantified and compared with a standard value. If the amount of label in the patient sample is significantly altered in comparison to the standard value, then the presence of the associated condition, disease or disorder is indicated.

In order to provide a basis for the diagnosis of a condition, disease or disorder associated with gene expression, a normal or standard expression profile is established. This may be accomplished by combining a biological sample taken from normal subjects, either animal or human, with a probe under conditions for hybridization or amplification. Standard hybridization may be quantified by comparing the values obtained using normal subjects with values from an experiment in which a known amount of a substantially purified target sequence is used. Standard values obtained in this manner may be compared with values obtained from samples from patients who are symptomatic for a particular condition, disease, or disorder. Deviation from standard values toward those associated with a particular condition is used to diagnose that condition.

Such assays may also be used to evaluate the efficacy of a particular therapeutic treatment regimen in animal studies and in clinical trial or to monitor the treatment of an individual patient. Once the presence of a condition is established and a treatment protocol is initiated, diagnostic assays may be repeated on a regular basis to determine if the level of expression in the patient begins to approximate that which is observed in a normal subject. The results obtained from successive assays may be used to show the efficacy of treatment over a period ranging from several days to months.

#### Gene Expression Profiles

A gene expression profile comprises a plurality of probes and a plurality of detectable hybridization complexes, wherein each complex is formed by hybridization of one or more probes to one or more complementary targets in a sample. The polynucleotide composition of the invention is used as probes on a

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microarray to analyze gene expression profiles. In one embodiment, the microarray is used to monitor the progression of disease. Researchers can assess and catalog the differences in gene expression between healthy and diseased tissues or cells. By analyzing changes in patterns of gene expression, disease can be diagnosed at earlier stages before the patient is symptomatic. The invention can be used to formulate a prognosis and to design a treatment regimen. The invention can also be used to monitor the efficacy of treatment. For treatments with known side effects, the microarray is employed to improve the treatment regimen. A dosage is established that causes a change in genetic expression patterns indicative of successful treatment. Expression patterns associated with the onset of undesirable side effects are avoided. This approach may be more sensitive and rapid than waiting for the patient to show inadequate improvement, or to manifest side effects, before altering the course of treatment.

In another embodiment, animal models which mimic a human disease can be used to characterize expression profiles associated with a particular condition, disorder or disease or treatment of the condition, disorder or disease. Novel treatment regimens may be tested in these animal models using microarrays to establish and then follow expression profiles over time. In addition, microarrays may be used with cell cultures or tissues removed from animal models to rapidly screen large numbers of candidate drug molecules. looking for ones that produce an expression profile similar to those of known therapeutic drugs, with the expectation that molecules with the same expression profile will likely have similar therapeutic effects. Thus, the invention provides the means to rapidly determine the molecular mode of action of a drug.

#### Assays Using Antibodies

Antibodies directed against epitopes on a protein encoded by a polynucleotide of the invention may be used in assays to quantify the amount of protein found in a particular human cell. Such assays include methods utilizing the antibody and a label to detect expression level under normal or disease conditions. The antibodies may be used with or without modification, and labeled by joining them, either covalently or noncovalently, with a labeling moiety.

Protocols for detecting and measuring protein expression using either polyclonal or monoclonal antibodies are well known in the art. Examples include ELISA, RIA, and fluorescent activated cell sorting (FACS). Such immunoassays typically involve the formation of complexes between the protein and its specific antibody and the measurement of such complexes. These and other assays are described in Pound (supra). The method may employ a two-site, monoclonal-based immunoassay utilizing monoclonal antibodies reactive to two non-interfering epitopes, or a competitive binding assay. (See, e.g., Coligan et al. (1997) Current Protocols in Immunology, Wiley-Interscience, New York NY; Pound, supra)

#### **Therapeutics**

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The polynucleotides of the present invention are useful in antisense technology. Target protein expression is modulated through the specific binding of an antisense probe sequence to a target sequence which either encodes the target protein or directs its expression. The antisense probe can be DNA, RNA, or nucleic acid mimics and analogs. The target sequence can be cellular mRNA and/or genomic DNA and binding of the antisense sequence can affect translation and/or transcription, respectively. (Rossi et al. (1991) Antisense Res. Dev. 1(3):285-288; Lee et al. (1998) Biochemistry 37(3):900-1010; Pardridge et al. (1995) Proc. Nat. Acad. Sci. 92(12):5592-5596; and Nielsen and Haaima (1997) Chem. Soc. Rev. 96:73-78.)

The polynucleotides of the present invention and fragments thereof can be used as antisense sequences to modify the expression of the protein encoded by the polynucleotide. The antisense sequences can be produced ex vivo, for example by using any of the nucleic acid synthesizers or other automated systems known in the art. Antisense sequences can also be produced by in vitro transcription or amplification (Agrawal, supra). In therapeutic use, any gene delivery system suitable for introduction of the antisense sequences into appropriate target cells can be used. Antisense sequences can be delivered intracellularly in the form of an expression plasmid which, upon transcription, produces a sequence complementary to at least a portion of the cellular sequence encoding the target protein. (See, e.g., Slater et al. (1998) J. Allergy Cli. Immunol. 102(3):469-475; and Scanlon et al. (1995) 9(13):1288-1296.) Antisense sequences can also be introduced intracellularly through the use of viral vectors, such as retrovirus and adeno-associated virus vectors. (See, e.g., Miller (1990) Blood 76:271; Ausubel, supra; Uckert and Walther (1994) Pharmacol. Ther. 63(3):323-347.) Other gene delivery mechanisms include liposome-derived systems, artificial viral envelopes, and other systems known in the art. (See, e.g., Rossi (1995) Br. Med. Bull. 51(1):217-225; Boado et al. (1998) J. Pharm. Sci. 87(11):1308-1315; and Morris et al. (1997) Nucleic Acids Res. 25(14):2730-2736.)

Molecules which modulate the expression of a polynucleotide of the invention or activity of the encoded protein are useful as therapeutics for conditions and disorders associated with an immune response. Such molecules include agonists which increase the expression or activity of the polynucleotide or encoded protein, respectively; or antagonists which decrease expression or activity of the polynucleotide or encoded protein, respectively. In one aspect, an antibody which specifically binds the protein may be used directly as an antagonist or indirectly as a targeting or delivery mechanism for bringing a pharmaceutical agent to cells or tissues which express the protein.

Additionally, any of the proteins or their ligands, or complementary nucleic acid sequences may be administered in combination with other appropriate therapeutic agents. Selection of the appropriate agents for use in combination therapy may be made by one of ordinary skill in the art, according to conventional

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pharmaceutical principles. The combination of therapeutic agents may act synergistically to effect the treatment or prevention of the conditions and disorders associated with an immune response. Using this approach, one may be able to achieve therapeutic efficacy with lower dosages of each agent, thus reducing the potential for adverse side effects. Further, the therapeutic agents may be combined with pharmaceutically-acceptable carriers including excipients and auxiliaries which facilitate processing of the active compounds into preparations which can be used pharmaceutically. Further details on techniques for formulation and administration may be found in the latest edition of Remington's Pharmaceutical Sciences (Maack Publishing Co., Easton PA).

It is understood that this invention is not limited to the particular methodology, protocols, and reagents described, as these may vary. It is also understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to limit the scope of the present invention which will be limited only by the appended claims. The examples below are provided to illustrate the subject invention and are not included for the purpose of limiting the invention.

#### **EXAMPLES**

#### I. Construction of cDNA Libraries

RNA was purchased from CLONTECH Laboratories, Inc. (Palo Alto CA) or isolated from various tissues. Some tissues were homogenized and lysed in guanidinium isothiocyanate, while others were homogenized and lysed in phenol or in a suitable mixture of denaturants, such as TRIZOL reagent (Life Technologies). The resulting lysates were centrifuged over CsCl cushions or extracted with chloroform. RNA was precipitated with either isopropanol or ethanol and sodium acetate, or by other routine methods.

Phenol extraction and precipitation of RNA were repeated as necessary to increase RNA purity. In most cases, RNA was treated with DNase. For most libraries, poly(A) RNA was isolated using oligo d(T)-coupled paramagnetic particles (Promega), OLIGOTEX latex particles (QIAGEN, Valencia CA), or an OLIGOTEX mRNA purification kit (QIAGEN). Alternatively, poly(A) RNA was isolated directly from tissue lysates using other kits, including the POLY(A)PURE mRNA purification kit (Ambion, Austin TX).

In some cases, Stratagene was provided with RNA and constructed the corresponding cDNA libraries. Otherwise, cDNA was synthesized and cDNA libraries were constructed with the UNIZAP vector system (Stratagene) or SUPERSCRIPT plasmid system (Life Technologies) using the recommended procedures or similar methods known in the art. (See Ausubel, supra, Units 5.1 through 6.6.) Reverse transcription was initiated using oligo d(T) or random primers. Synthetic oligonucleotide adapters were ligated to double stranded cDNA, and the cDNA was digested with the appropriate restriction enzyme or enzymes. For most libraries, the cDNA was size-selected (300-1000 bp) using SEPHACRYL S1000,

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SEPHAROSE CL2B, or SEPHAROSE CL4B column chromatography (Amersham Pharmacia Biotech) or preparative agarose gel electrophoresis. cDNAs were ligated into compatible restriction enzyme sites of the polylinker of the PBLUESCRIPT plasmid (Stratagene), PSPORT1 plasmid (Life Technologies), or PINCY plasmid (Incyte Pharmaceuticals, Palo Alto CA). Recombinant plasmids were transformed into XL1-Blue, XL1-BlueMRF, or SOLR competent <u>E. coli</u> cells (Stratagene) or DH5α, DH10B, or ELECTROMAX DH10B competent <u>E. coli</u> cells (Life Technologies).

In some cases, libraries were superinfected with a 5x excess of the helper phage, M13K07, according to the method of Vieira et al. (1987, Methods Enzymol. 153:3-11) and normalized or subtracted using a methodology adapted from Soares (supra), Swaroop et al. (1991, Nucl. Acids Res. 19:1954), and Bonaldo et al. (1996, Genome Research 6:791-806). The modified Soares normalization procedure was utilized to reduce the repetitive cloning of highly expressed high abundance cDNAs while maintaining the overall sequence complexity of the library. Modification included significantly longer hybridization times which allowed for increased gene discovery rates by biasing the normalized libraries toward those infrequently expressed low-abundance cDNAs which are poorly represented in a standard transcript image (Soares et al. (1994) Proc. Natl. Acad. Sci. 91:9228-9232).

#### II. Isolation and Sequencing of cDNA Clones

Plasmids were recovered from host cells by in vivo excision using the UNIZAP vector system (Stratagene) or by cell lysis. Plasmids were purified using one of the following: the Magic or WIZARD Minipreps DNA purification system (Promega); the AGTC Miniprep purification kit (Edge BioSystems, Gaithersburg MD); the QIAWELL 8, QIAWELL 8 Plus, or QIAWELL 8 Ultra plasmid purification systems, or the R.E.A.L. PREP 96 plasmid purification kit (QIAGEN). Following precipitation, plasmids were resuspended in 0.1 ml of distilled water and stored, with or without lyophilization, at 4°C.

Alternatively, plasmid DNA was amplified from host cell lysates using direct link PCR in a high-throughput format (Rao (1994) Anal. Biochem. 216:1-14). Host cell lysis and thermal cycling steps were carried out in a single reaction mixture. Samples were processed and stored in 384-well plates, and the concentration of amplified plasmid DNA was quantified fluorometrically using PICOGREEN dye (Molecular Probes) and a FLUOROSKAN II fluorescence scanner (Labsystems Ov, Helsinki, Finland).

cDNA sequencing reactions were processed using standard methods or high-throughput instrumentation such as the ABI CATALYST 800 thermal cycler (PE Biosystems) or the DNA ENGINE thermal cycler (MJ Research, Watertown MA) in conjunction with the HYDRA microdispenser (Robbins Scientific, Sunnyvale CA) or the MICROLAB 2200 system (Hamilton). cDNA sequencing reactions were prepared using reagents provided by Amersham Pharmacia Biotech or supplied in ABI sequencing kits such

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as the ABI PRISM BIGDYE cycle sequencing kit (PE Biosystems). Electrophoretic separation of cDNA sequencing reactions and detection of labeled polynucleotides were carried out using the MEGABACE 1000 DNA sequencing system (Amersham Pharmacia Biotech); the ABI PRISM 373 or 377 sequencing system (PE Biosystems) in conjunction with standard ABI protocols and base calling software; or other sequence analysis systems known in the art. Reading frames within the cDNA sequences were identified using standard methods (reviewed in Ausubel, supra, Unit 7.7).

#### III. Extension of cDNA Sequences

Nucleic acid sequences were extended using Incyte cDNA clones and oligonucleotide primers. One primer was synthesized to initiate 5' extension of the known fragment, and the other, to initiate 3' extension of the known fragment. The initial primers were designed using OLIGO 4.06 software (National Biosciences), or another appropriate program, to be about 22 to 30 nucleotides in length, to have a GC content of about 50% or more, and to anneal to the target sequence at temperatures of about 68°C to about 72°C. Any stretch of nucleotides which would result in hairpin structures and primer-primer dimerizations was avoided.

Selected human cDNA libraries were used to extend the sequence. If more than one extension was necessary or desired, additional or nested sets of primers were designed. Preferred libraries are ones that have been size-selected to include larger cDNAs. Also, random primed libraries are preferred because they will contain more sequences with the 5' and upstream regions of genes. A randomly primed library is particularly useful if an oligo d(T) library does not yield a full-length cDNA.

High fidelity amplification was obtained by PCR using methods well known in the art. PCR was performed in 96-well plates using the DNA ENGINE thermal cycler (PTC-200; MJ Research). The reaction mix contained DNA template, 200 nmol of each primer, reaction buffer containing Mg<sup>2+</sup>, (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>, and β-mercaptoethanol, Taq DNA polymerase (Amersham Pharmacia Biotech), ELONGASE enzyme (Life Technologies), and Pfu DNA polymerase (Stratagene), with the following parameters for primer pair PCI A and PCI B (Incyte Pharmaceuticals): Step 1: 94°C, 3 min; Step 2: 94°C, 15 sec; Step 3: 60°C, 1 min; Step 4: 68°C, 2 min; Step 5: Steps 2, 3, and 4 repeated 20 times; Step 6: 68°C, 5 min; Step 7: storage at 4°C. In the alternative, the parameters for primer pair T7 and SK+ (Stratagene) were as follows: Step 1: 94°C, 3 min; Step 2: 94°C, 15 sec; Step 3: 57°C, 1 min; Step 4: 68°C, 2 min; Step 5: Steps 2, 3, and 4 repeated 20 times; Step 6: 68°C, 5 min; Step 7: storage at 4°C.

The concentration of DNA in each well was determined by dispensing  $100~\mu l$  PICOGREEN reagent (Molecular Probes; 0.25% reagent in 1x TE, v/v) and  $0.5~\mu l$  of undiluted PCR product into each well of an opaque fluorimeter plate (Corning Costar, Acton MA) and allowing the DNA to bind to the reagent. The plate was scanned in a Fluoroskan II (Labsystems Oy) to measure the fluorescence of the sample and to

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quantify the concentration of DNA. A 5  $\mu$ l to 10  $\mu$ l aliquot of the reaction mixture was analyzed by electrophoresis on a 1% agarose mini-gel to determine which reactions were successful in extending the sequence.

The extended nucleic acids were desalted and concentrated, transferred to 384-well plates, digested with CviJI cholera virus endonuclease (Molecular Biology Research, Madison WI), and sonicated or sheared prior to religation into pUC18 vector (Amersham Pharmacia Biotech). For shotgun sequencing, the digested nucleic acids were separated on low concentration (0.6 to 0.8%) agarose gels, fragments were excised, and agar digested with AGARACE enzyme (Promega). Extended clones were religated using T4 DNA ligase (New England Biolabs, Beverly MA) into pUC18 vector (Amersham Pharmacia Biotech), treated with Pfu DNA polymerase (Stratagene) to fill-in restriction site overhangs, and transfected into competent *E. coli* cells. Transformed cells were selected on antibiotic-containing media, and individual colonies were picked and cultured overnight at 37°C in 384-well plates in LB/2x carbenicillin liquid media.

The cells were lysed, and DNA was amplified by PCR using Taq DNA polymerase (Amersham Pharmacia Biotech) and Pfu DNA polymerase (Stratagene) with the following parameters: Step 1: 94°C, 3 min; Step 2: 94°C, 15 sec; Step 3: 60°C, 1 min; Step 4: 72°C, 2 min; Step 5: steps 2, 3, and 4 repeated 29 times; Step 6: 72°C, 5 min; Step 7: storage at 4°C. DNA was quantified using PICOGREEN reagent (Molecular Probes) as described above. Samples with low DNA recoveries were reamplified using the same conditions described above. Samples were diluted with 20% dimethylsulfoxide (DMSO; 1:2, v/v), and sequenced using DYENAMIC energy transfer sequencing primers and the DYENAMIC DIRECT cycle sequencing kit (Amersham Pharmacia Biotech) or the ABI PRISM BIGDYE terminator cycle sequencing kit (PE Biosystems).

#### IV. Assembly and Analysis of Sequences

Component nucleotide sequences from chromatograms were subjected to PHRED analysis (Phil's Revised Editing Program; Phil Green, University of Washington, Seattle WA) and assigned a quality score. The sequences having at least a required quality score were subject to various pre-processing algorithms to eliminate low quality 3' ends, vector and linker sequences, polyA tails, Alu repeats, mitochondrial and ribosomal sequences, bacterial contamination sequences, and sequences smaller than 50 base pairs. Sequences were screened using the BLOCK 2 program (Incyte Pharmaceuticals), a motif analysis program based on sequence information contained in the SWISS-PROT and PROSITE databases (Bairoch et al. (1997) Nucleic Acids Res. 25:217-221; Attwood et al. (1997) J. Chem. Inf. Comput. Sci. 37:417-424).

Processed sequences were subjected to assembly procedures in which the sequences were assigned to bins, one sequence per bin. Sequences in each bin were assembled to produce consensus sequences,

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templates. Subsequent new sequences were added to existing bins using the Basic Local Alignment Search Tool (BLAST; Altschul (1993) J. Mol. Evol. 36:290-300; Altschul et al. (1990) J. Mol. Biol. 215:403-410; Karlin et al. (1988) Proc. Natl. Acad. Sci. 85:841-845), BLASTn (v.1.4, WashU), and CROSSMATCH software (Phil Green, supra). Candidate pairs were identified as all BLAST hits having a quality score greater than or equal to 150. Alignments of at least 82% local identity were accepted into the bin. The component sequences from each bin were assembled using PHRAP (Phil's Revised Alignment Program; Phil Green, supra). Bins with several overlapping component sequences were assembled using DEEP PHRAP (Phil Green, supra).

Bins were compared against each other, and those having local similarity of at least 82% were combined and reassembled. Reassembled bins having templates of insufficient overlap (less than 95% local identity) were re-split. Assembled templates were also subjected to analysis by STITCHER/EXON MAPPER algorithms which analyzed the probabilities of the presence of splice variants, alternatively spliced exons, splice junctions, differential expression of alternative spliced genes across tissue types, disease states, and the like. These resulting bins were subjected to several rounds of the above assembly procedures to generate the template sequences found in the LIFESEQ GOLD database (Incyte Pharmaceuticals).

The assembled templates were annotated using the following procedure. Template sequences were analyzed using BLASTn (v2.0, NCBI) versus GBpri (GenBank version 109). "Hits" were defined as an exact match having from 95% local identity over 200 base pairs through 100% local identity over 100 base pairs, or a homolog match having an E-value of  $\leq 1 \times 10^{-8}$ . The hits were subjected to frameshift FASTx versus GENPEPT (GenBank version 109). In this analysis, a homolog match was defined as having an E-value of  $\leq 1 \times 10^{-8}$ . The assembly method used above was described in "Database and System for Storing, Comparing and Displaying Related Biomolecular Sequence Information," U.S.S.N. 09/276,534, filed March 25, 1999, incorporated by reference herein, and the LIFESEQ GOLD user manual (Incyte Pharmaceuticals).

Following assembly, template sequences were subjected to motif, BLAST, Hidden Markov Model (HMM; Pearson and Lipman (1988) Proc. Natl. Acad. Sci. 85:2444-2448; Smith and Waterman (1981) J. Mol. Biol. 147:195-197), and functional analyses, and categorized in protein hierarchies using methods described in "Database System Employing Protein Function Hierarchies for Viewing Biomolecular Sequence Data," U.S.S.N. 08/812,290, filed March 6, 1997; "Relational Database for Storing Biomolecular Information," U.S.S.N. 08/947,845, filed October 9, 1997; "Project-Based Full-Length Biomolecular Sequence Database," U.S.P.N. 5,953,727;; and "Relational Database and System for Storing Information Relating to Biomolecular Sequences," U.S.S.N. 09/034,807, filed March 4, 1998, all of which are incorporated by reference herein. Template sequences may be further queried against public databases such

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as the GenBank rodent, mammalian, vertebrate, eukaryote, prokaryote, and human EST databases.

#### V. Preparation of Microarrays

The polynucleotides present on the human GENEALBUM GEM series 1-6 microarrays (Incyte Pharmaceuticals) represent template sequences derived from the LIFESEQ GOLD assembled human sequence database (Incyte Pharmaceuticals). In cases where more than one clone was available for a particular template, the 5'-most clone in the template was used on the microarray. Polynucleotides were amplified from bacterial cells using primers complementary to vector sequences flanking the cDNA insert. Thirty cycles of PCR increased the initial quantity of polynucleotide from 1-2 ng to a final quantity greater than 5 µg. Amplified polynucleotides were then purified using SEPHACRYL-400 columns (Amersham Pharmacia Biotech).

Purified polynucleotides were immobilized on polymer-coated glass slides. Glass microscope slides (Corning, Corning NY) were cleaned by ultrasound in 0.1% SDS and acetone, with extensive distilled water washes between and after treatments. Glass slides were etched in 4% hydrofluoric acid (VWR Scientific Products Corporation, West Chester PA), washed extensively in distilled water, and coated with 0.05% aminopropyl silane (Sigma, St. Louis MO) in 95% ethanol. Coated slides were cured in a 110°C oven. polynucleotides were applied to the coated glass substrate using a procedure described in U.S.P.N. 5,807,522, incorporated herein by reference. One microliter of the polynucleotide at an average concentration of 100 ng/ul was loaded into the open capillary printing element by a high-speed robotic apparatus which then deposited about 5 nl of polynucleotide per slide.

Microarrays were UV-crosslinked using a STRATALINKER UV-crosslinker (Stratagene), and then washed at room temperature once in 0.2% SDS and three times in distilled water. Non-specific binding sites were blocked by incubation of microarrays in 0.2% casein in phosphate buffered saline (Tropix, Bedford MA) for 30 minutes at 60°C followed by washes in 0.2% SDS and distilled water as before.

# VI. Preparation of Target Polynucleotides

#### Cytokine treatment of PBMCs

Peripheral blood mononuclear cells (PBMCs) were isolated from freshly obtained peripheral blood of two healthy donors by centrifugation of the lymphocyte enriched blood fraction over a HYPAQUE ficoll gradient (Sigma). The isolated PBMCs were grown in Yssel's media (Yssel (1984) J. Immunol. Methods 72:219-225) supplemented with 1% pooled type AB human serum. About 2 x 10<sup>7</sup> PBMCs from each donor were treated with Group A (pro-inflammatory) cytokines for two hours at 37°C, at the following concentrations: IL-1β at 10ng/ml (R&D Systems, Minneapolis MN); IL-2 at 10 ng/ml (R&D Systems); IL-6 at 10 ng/ml (R&D Systems); IL-18 at 10 ng/ml (R&D Systems); IL-18 at 10

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ng/ml (Peprotech, Inc., Rockyhill NJ); TNFα at 10 ng/ml (R&D Systems); and IFNγ at 50 ng/ml (R&D Systems). Similarly, 2 x 10<sup>7</sup> PBMCs from each donor were treated with Group B (anti-inflammatory) cytokines for two hours at 37°C, using the following concentrations: IL-3 at 10 ng/ml (R&D Systems); IL-4 at 10 ng/ml (R&D Systems); IL-5 at 10 ng/ml (R&D Systems); IL-7 at 10 ng/ml (R&D Systems); IL-10 at 50 ng/ml (R&D Systems); LIF at 20 ng/ml (R&D Systems); GM-CSF at 10 ng/ml (R&D Systems); G-CSF at 100 ng/ml (R&D Systems); TGFβ at 10 ng/ml (R&D Systems); and leptin at 100 nM (Peprotech). Approximately 1 x 10<sup>8</sup> PBMCs from each donor were untreated controls.

#### Isolation and Labeling of Target Polynucleotides

Cells were harvested and lysed in TRIZOL reagent (5 x 10<sup>6</sup> cells/1 ml; Life Technologies). Cell lysates were vortexed, incubated at room temperature for 2-3 minutes, and extracted with 0.5 ml chloroform. The extract was mixed, incubated at room temperature for 5 minutes, and centrifuged at 16,000g for 15 minutes at 4°C. The aqueous layer was collected and an equal volume of isopropanol was added. Samples were mixed, incubated at room temperature for 10 minutes, and centrifuged at 16,000g for 20 minutes at 4°C. The supernatant was removed and the RNA pellet was washed with 70% ethanol, centrifuged at 16,000g at 4°C, and resuspended in RNase-free water. The concentration of RNA was determined by measuring the optical density at 260 nm.

Poly(A) RNA was prepared using an OLIGOTEX mRNA kit (QIAGEN) with the following modifications: OLIGOTEX beads were washed in tubes instead of on spin columns, resuspended in elution buffer, and then loaded onto spin columns to recover mRNA. To obtain maximum yield, the mRNA was eluted twice. Each poly(A) RNA sample was reverse transcribed using MMLV reverse-transcriptase, 0.05 pg/µl oligo-dT primer (21mer), 1x first strand buffer, 0.03 units/ul RNase inhibitor, 500 uM dATP, 500 uM dGTP, 500 uM dTTP, 40 uM dCTP, and 40 uM either dCTP-Cy3 or dCTP-Cy5 (Amersham Pharmacia Biotech). The reverse transcription reaction was performed in a 25 ml volume containing 200 ng poly(A) RNA using the GEMBRIGHT kit (Incyte Pharmaceuticals). Specific control poly(A) RNAs (YCFR06, YCFR45, YCFR67, YCFR85, YCFR43, YCFR22, YCFR23, YCFR25, YCFR44, YCFR26) were synthesized by in vitro transcription from non-coding yeast genomic DNA (W. Lei, unpublished). As quantitative controls, control mRNAs (YCFR06, YCFR45, YCFR67, and YCFR85) at 0.002ng, 0.02ng, 0.2 ng, and 2ng were diluted into reverse transcription reaction at ratios of 1:100,000, 1:10,000, 1:1000, 1:100 (w/w) to sample mRNA, respectively. To sample differential expression patterns, control mRNAs (YCFR43, YCFR22, YCFR23, YCFR25, YCFR44, YCFR26) were diluted into reverse transcription reaction at ratios of 1:3, 3:1, 1:10, 10:1, 1:25, 25:1 (w/w) to sample mRNA. Reactions were incubated at 37°C for 2 hr, treated with 2.5 ml of 0.5M sodium hydroxide, and incubated for 20 minutes at 85°C to the stop the reaction and

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degrade the RNA.

Targets were purified using two successive CHROMA SPIN 30 gel filtration spin columns (CLONTECH). Cy3- and Cy5-labeled reaction samples were combined as described below and ethanol precipitated using 1 ml of glycogen (1 mg/ml), 60 ml sodium acetate, and 300 ml of 100% ethanol. The target was then dried to completion using a SpeedVAC system (Savant Instruments Inc., Holbrook NY) and resuspended in 14 μl 5X SSC/0.2% SDS.

#### VII. Hybridization and Detection

Hybridization reactions contained 9  $\mu$ l of target mixture consisting of 0.2  $\mu$ g each of Cy3 and Cy5 labeled cDNA synthesis products in 5X SSC, 0.2% SDS hybridization buffer. The targets were assigned the following designations: a) a control experiment where the Cy3 and Cy5 targets were cDNA from untreated PBMCs; b) Cy3 was cDNA from untreated PBMCs and Cy5 was cDNA from Group A treated PBMCs; and c) Cy3 was cDNA from untreated PBMCs and Cy5 was cDNA from Group B treated PBMCs. The target mixture was heated to 65°C for 5 minutes and was aliquoted onto the microarray surface and covered with an 1.8 cm² coverslip. The microarrays were transferred to a waterproof chamber having a cavity just slightly larger than a microscope slide. The chamber was kept at 100% humidity internally by the addition of 140  $\mu$ l of 5x SSC in a corner of the chamber. The chamber containing the microarrays was incubated for about 6.5 hours at 60°C. The microarrays were washed for 10 min at 45°C in low stringency wash buffer (1x SSC, 0.1% SDS), three times for 10 minutes each at 45°C in high stringency wash buffer (0.1x SSC), and dried. Detection

Reporter-labeled hybridization complexes were detected with a microscope equipped with an Innova 70 mixed gas 10 W laser (Coherent, Inc., Santa Clara CA) capable of generating spectral lines at 488 nm for excitation of Cy3 and at 632 nm for excitation of Cy5. The excitation laser light was focused on the microarray using a 20X microscope objective (Nikon, Inc., Melville NY). The slide containing the microarray was placed on a computer-controlled X-Y stage on the microscope and raster-scanned past the objective. The 1.8 cm x 1.8 cm microarray used in the present example was scanned with a resolution of 20 micrometers.

In two separate scans, the mixed gas multiline laser excited the two fluorophores sequentially. Emitted light was split, based on wavelength, into two photomultiplier tube detectors (PMT R1477; Hamamatsu Photonics Systems, Bridgewater NJ) corresponding to the two fluorophores. Appropriate filters positioned between the microarray and the photomultiplier tubes were used to filter the signals. The emission maxima of the fluorophores used were 565 nm for Cy3 and 650 nm for Cy5. Each microarray was typically scanned twice, one scan per fluorophore using the appropriate filters at the laser source, although the

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apparatus was capable of recording the spectra from both fluorophores simultaneously.

The sensitivity of the scans was calibrated using the signal intensity generated by a cDNA control species. Samples of the calibrating cDNA were separately labeled with the two fluorophores and identical amounts of each were added to the hybridization mixture. A specific location on the microarray contained a complementary DNA sequence, allowing the intensity of the signal at that location to be correlated with a weight ratio of hybridizing species of 1:100,000.

The output of the photomultiplier tube was digitized using a 12-bit RTI-835H analog-to-digital (A/D) conversion board (Analog Devices, Inc., Norwood, MA) installed in an IBM-compatible PC computer. The digitized data were displayed as an image where the signal intensity was mapped using a linear 20-color transformation to a pseudocolor scale ranging from blue (low signal) to red (high signal). The data was also analyzed quantitatively. Where two different fluorophores were excited and measured simultaneously, the data were first corrected for optical crosstalk (due to overlapping emission spectra) between the fluorophores using each fluorophore's emission spectrum.

A grid was superimposed over the fluorescence signal image such that the signal from each spot was centered in each element of the grid. The fluorescence signal within each element was then integrated to obtain a numerical value corresponding to the average intensity of the signal. The software used for signal analysis was the GEMTOOLS gene expression analysis program (Incyte Pharmaceuticals).

#### VIII. Data Analysis and Results

Genes which exhibited a ≥2-fold change in expression in cytokine-treated vs untreated controls and displayed a signal intensity over 300 were identified using the GEMTOOLS program (Incyte Pharmaceuticals). The polynucleotides comprising SEQ ID NOs:1-516 as presented in the Sequence Listing showed at least a 2-fold change in expression in response to pro-inflammatory cytokines, anti-inflammatory cytokines, or both pro-and anti-inflammatory cytokines. Comparisons of expression between two different cytokine pools allowed the identification of genes useful in diagnosing a condition associated with pro-inflammatory response such as organ-specific autoimmune disorders including insulin-dependent diabetes mellitus, multiple sclerosis, rheumatoid arthritis, Crohn's disease and pemphigus vulgaris; anti-inflammatory response such as bacterial and parasitic infections, allergies and other atopic disorders, transplantation tolerance, chronic graft versus host disease, and sytemic autoimmune disease including systemic lupus erythematosus; or an immune response encompassing characteristics of both pro- and anti-inflammatory response.

Tables 1-4 represent various combinations of the polynucleotides of SEQ ID Nos:1-516 that were up or down regulated at least 2-fold in PBMCs in response to human cytokines. Since the polynucleotides were

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identified solely based on differential expression in cytokine-treated versus untreated tissue, it is not essential to know a <u>priori</u> the name, structure, or function of a particular gene or protein. The usefulness of the human sequences exists in their immediate value as diagnostics for immune response and immune disorders.

In tables 1-3, columns 1 and 2 list the SEQ ID NO and Incyte clone number, respectively, for the polynucleotides of the invention. Columns 3 and 4 indicate the differential expression of the gene measured at the end of the experiment for pro- and anti-inflammatory cytokine treatment, respectively. Differential expression values are reported as  $\log_n$  [control (untreated)  $\div$  cytokine-treated]. A value of -1 indicates a 2-fold increase in expression in response to cytokine treatment.

Table 1 lists novel polynucleotides differentially regulated at least 2-fold in response to both pro- and anti-inflammatory cytokines. These genes are associated with the general response of PBMCs to signals from the immune system and the infective process.

Table 2 lists novel polynucleotides differentially regulated at least 2-fold in response to proinflammatory cytokines. These genes reflect the response of PBMCs to the mileau of cytokines released during inflammation and represent potentially useful markers for viral infections and autoimmune disorders.

Table 3 lists novel polynucleotides differentially regulated at least 2-fold in response to anti-inflammatory cytokines. These genes reflect the response of PBMCs to the mileau of cytokines released in opposition of an inflammatory response and represent potentially useful markers for bacterial and parasitic infections and allergic response.

Table 4 lists known polynucleotides differentially regulated at least 2-fold in response to proinflammatory cytokines, anti-inflammatory cytokines, or both pro- and anti-inflammatory cytokines. Some genes identified in table 4, such as the p53 binding protein 53BP2, IFN-γ accessory factor AF-1, and IL-2 receptor, were previously known to be modulated by cytokines. Other genes identified in table 4, such as thrombomodulin, the mucin-like hormone receptor EMR1, and the LIM protein ESP1/CRP2, were not previously known to be modulated by cytokines. Columns 1 and 2 list the SEQ ID NO and Incyte clone ID, respectively, for the polynucleotides of the invention. Column 3 provides a description of the gene. Sequences not identified by BLAST are indicated as "Incyte EST". Columns 4 and 5 show the GenBank ID and corresponding GenBank 113 database, respectively, of the closest homolog identified by BLAST. Columns 6 and 7 indicate the differential expression of the gene measured at the end of the experiment for pro- and anti-inflammatory cytokine treatment, respectively. Differential expression values are reported as log<sub>n</sub> [untreated ÷ cytokine-treated].

The polynucleotides of the Sequence Listing have been prepared by current, state-of-the-art, automated methods and, as such, may contain occasional sequencing errors or unidentified nucleotides. Such

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unidentified nucleotides are designated by an 'n'. These infrequent unidentified bases do not represent a hindrance to practicing the invention for those skilled in the art. Several methods employing standard recombinant techniques may be used to correct errors and complete the missing sequence information. (See, e.g., those described in Ausubel et al. (1997) Short Protocols in Molecular Biology, John Wiley & Sons, New York NY; and Sambrook et al. (1989) Molecular Cloning, A Laboratory Manual, Cold Spring Harbor Press, Plainview NY.)

# IX. Complementary Nucleic Acid Molecules

Molecules complementary to the polynucleotide or a fragment thereof are used to detect, decrease, or inhibit gene expression. Although use of oligonucleotides comprising from about 15 to about 30 base pairs is described, the same procedure is used with larger or smaller fragments or their derivatives (PNAs).

Oligonucleotides are designed using vector NTI software (Informax, N. Bethesda MD) and SEQ ID NOs:1-516. To inhibit transcription by preventing promoter binding, a complementary oligonucleotide is designed to bind to the most unique 5' sequence, most preferably about 10 nucleotides before the initiation codon of the open reading frame. To inhibit translation, a complementary oligonucleotide is designed to prevent ribosomal binding to the mRNA encoding the protein.

# X. Probe Preparation, Target Labeling, and Hybridization Analyses

Probe nucleic acid molecules are isolated and applied to a substrate for standard hybridization protocols by one of the following methods. A mixture of probes is fractionated by electrophoresis through an 0.7% agarose gel in 1x TAE [Tris-acetate-EDTA] running buffer and transferred to a nylon membrane by capillary transfer using 20x SSC. Alternatively, the probes are individually ligated to a vector and inserted into bacterial host cells to form a library. Probes are then arranged on a substrate by one of the following methods. In the first method, bacterial cells containing individual clones are robotically picked and arranged on a nylon membrane. The membrane is placed on bacterial growth medium, LB agar containing carbenicillin, and incubated at 37°C for 16 hours. Bacterial colonies are denatured, neutralized, and digested with proteinase K. Nylon membranes are exposed to UV irradiation in a STRATALINKER UV-crosslinker (Stratagene) to cross-link probe to the membrane.

In the second method, probes are amplified from bacterial vectors by thirty cycles of PCR using primers complementary to vector sequences flanking the insert. Amplified probes are purified using SEPHACRYL-400 beads (Amersham Pharmacia Biotech). Purified probes are robotically arrayed onto a glass microscope slide (Corning Science Products, Corning NY). The slide was previously coated with 0.05% aminopropyl silane (Sigma-Aldrich, St. Louis MO) and cured at 110°C. The arrayed glass slide (microarray) was exposed to UV irradiation in a STRATALINKER UV-crosslinker (Stratagene).

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cDNA targets are made from mRNA templates. Five micrograms of mRNA is mixed with 1  $\mu g$ random primer (Life Technologies), incubated at 70°C for 10 minutes, and lyophilized. The lyophilized sample is resuspended in 50 µl of 1x first strand buffer (cDNA Synthesis systems; Life Technologies) containing a dNTP mix,  $[\alpha^{-32}P]dCTP$ , dithiothreitol, and MMLV reverse transcriptase (Stratagene), and incubated at 42°C for 1-2 hours. After incubation, the target is diluted with 42 µl dH<sub>2</sub>O, heated to 95°C for 3 minutes, and cooled on ice. mRNA in the target is removed by alkaline degradation. The target is neutralized, and degraded mRNA and unincorporated nucleotides are removed using a PROBEQUANT G-50 microcolumn (Amersham Pharmacia Biotech). Targets can be labeled with fluorescent markers, Cy3-dCTP or Cy5-dCTP (Amersham Pharmacia Biotech), in place of the radionucleotide, [32P]dCTP.

Hybridization is carried out at 65°C in a hybridization buffer containing 0.5 M sodium phosphate (pH 7.2), 7% SDS, and 1 mM EDTA. After the substrate is incubated in hybridization buffer at 65°C for at least 2 hours, the buffer is replaced with 10 ml of fresh buffer containing the targets. After incubation at 65°C for 18 hours, the hybridization buffer is removed, and the substrate is washed sequentially under increasingly stringent conditions, up to 40 mM sodium phosphate, 1% SDS, 1 mM EDTA at 65°C. To detect signal produced by a radiolabeled target hybridized on a membrane, the substrate is exposed to a PHOSPHORIMAGER cassette (Amersham Pharmacia Biotech), and the image is analyzed using IMAGEQUANT data analysis software (Amersham Pharmacia Biotech). To detect signals produced by a fluorescent target hybridized on a microarray, the substrate is examined by confocal laser microscopy, and images are collected and analyzed using GEMTOOLS gene expression analysis software (Incyte Pharmaceuticals).

#### **Expression of the Encoded Protein** XI.

Expression and purification of a protein encoded by a polynucleotide of the invention is achieved using bacterial or virus-based expression systems. For expression in bacteria, cDNA is subcloned into a vector containing an antibiotic resistance gene and an inducible promoter that directs high levels of cDNA transcription. Examples of such promoters include, but are not limited to, the trp-lac (tac) hybrid promoter and the T5 or T7 bacteriophage promoter in conjunction with the lac operator regulatory element. Recombinant vectors are transformed into bacterial hosts, such as BL21(DE3). Antibiotic resistant bacteria express the protein upon induction with isopropyl beta-D-thiogalactopyranoside (IPTG). Expression in eukaryotic cells is achieved by infecting Spodoptera frugiperda (Sf9) insect cells with recombinant baculovirus, Autographica californica nuclear polyhedrosis virus. The polyhedrin gene of baculovirus is replaced with the polynucleotide by either homologous recombination or bacterial-mediated transposition involving transfer plasmid intermediates. Viral infectivity is maintained and the strong polyhedrin promoter

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drives high levels of polynucleotide transcription.

Protein is synthesized as a fusion protein with glutathione S-transferase (GST) permitting rapid, single-step, affinity-based purification of recombinant fusion protein from crude cell lysates. GST enables the purification of fusion proteins on immobilized glutathione under conditions that maintain protein activity and antigenicity (Amersham Pharmacia Biotech). Following purification, the GST moiety is proteolytically cleaved from the protein at specifically engineered sites.

# XII. Production of Specific Antibodies

Protein encoded by a polynucleotide of the invention is purified using polyacrylamide gel electrophoresis and used to immunize mice or rabbits. Alternatively, the amino acid sequence of the protein is analyzed using LASERGENE software (DNASTAR) to determine regions of high immunogenicity. An immunogenic epitope near the C-terminus or in a hydrophilic region is selected, synthesized, and used to raise antibodies. Typically, epitopes of about 15 residues in length are produced using an ABI 431A peptide synthesizer (PE Biosystems) using Fmoc-chemistry and coupled to KLH (Sigma-Aldrich) by reaction with N-maleimidobenzoyl-N-hydroxysuccinimide ester to increase immunogenicity.

Rabbits are immunized with the epitope-KLH complex in complete Freund's adjuvant. Immunizations are repeated at intervals in incomplete Freund's adjuvant. After a minimum of seven weeks for mouse or twelve weeks for rabbit, antisera are drawn and tested for antipeptide activity. Testing involves binding the peptide to plastic, blocking with 1% bovine serum albumin, reacting with rabbit antisera, washing, and reacting with radio-iodinated goat anti-rabbit IgG. Antibody titer is then determined.

# XIII. Purification of Naturally Occurring Protein Using Specific Antibodies

Naturally occurring or recombinant protein is substantially purified by immunoaffinity chromatography using antibodies specific for the protein. An immunoaffinity column is constructed by covalently coupling the antibody to CNBr-activated SEPHAROSE resin (Amersham Pharmacia Biotech). Media containing the protein is passed over the immunoaffinity column, and the column is washed using high ionic strength buffers in the presence of detergent to allow preferential absorbance of the protein. After coupling, the protein is eluted from the column using a buffer of pH 2-3 or a high concentration of urea or thiocyanate ion to disrupt antibody/protein binding, and the protein is collected.

# XIV. Screening Molecules for Specific Binding with the Probe or Protein

The polynucleotide or fragments thereof are labeled with <sup>32</sup>P-dCTP, Cy3-dCTP, Cy5-dCTP (Amersham Pharmacia Biotech), or the protein or portions thereof are labeled with BIODIPY or FITC (Molecular Probes). Libraries of candidate molecules previously arranged on a substrate are incubated in the presence of labeled probe or protein. After incubation under conditions for either a nucleic acid or amino

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acid sequence, the substrate is washed, and any position on the substrate retaining label, which indicates specific binding or complex formation, is assayed, and the binding molecule is identified. Data obtained using different concentrations of the probe or protein are used to calculate affinity between the labeled probe or protein and the bound molecule.

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All publications and patents mentioned in the above specification are herein incorporated by reference. Various modifications and variations of the described method and system of the invention will be apparent to those skilled in the art without departing from the scope and spirit of the invention. Although the invention has been described in connection with specific preferred embodiments, it should be understood that the invention as claimed should not be unduly limited to such specific embodiments. Indeed, various modifications of the above-described modes for carrying out the invention which are obvious to those skilled in the field of molecular biology or related fields are intended to be within the scope of the following claims.

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#### **CLAIMS**

What is claimed is:

- 1. A composition comprising a plurality of polynucleotides whose expression is modulated by cytokines, wherein the polynucleotides comprise SEQ ID NOs:1-516 or a complement thereof.
- 2. A substantially purified polynucleotide whose expression is modulated by cytokines comprising at least a fragment of a gene selected from SEQ ID NOs:1-243 or a complement thereof.
- 3. The polynucleotide of claim 2 whose expression is modulated by pro-inflammatory and anti-inflammatory cytokines, wherein the polynucleotide is selected from SEQ ID NOs:1-172 or a complement thereof.
- 4. The polynucleotide of claim 2 whose expression is modulated by pro-inflammatory cytokines, wherein the polynucleotide is selected from SEQ ID NOs:173-218 or a complement thereof.
- 5. The polynucleotide of claim 2 whose expression is modulated by anti-inflammatory cytokines, wherein the polynucleotide is selected from SEQ ID NOs:219-243 or a complement thereof.
  - 6. The composition of claim 1, wherein the polynucleotides are immobilized on a substrate.
  - 7. A high throughput method for detecting a polynucleotide in a sample, the method comprising:
- (a) hybridizing the composition of claim 1 with the sample, thereby forming hybridization complex; and
- (b) detecting the hybridization complex, wherein the presence of the hybridization complex indicates the presence of the polynucleotide in the sample.
- 8. A high throughput method of screening a library of molecules or compounds to identify a ligand, the method comprising:
- (a) combining the composition of claim 1 with a library of molecules or compounds under conditions to allow specific binding; and
  - (b) detecting specific binding, thereby identifying a ligand.
- 9. The method of claim 8 wherein the library is selected from DNA molecules, RNA molecules, peptide nucleic acids, mimetics, peptides, and proteins.
  - 10. A method of purifying ligands, the method comprising:
- a) combining the polynucleotide of claim 2 with a sample under conditions which allow specific binding;
  - b) recovering the bound polynucleotide, and
  - c) separating the polynucleotide from the ligand, thereby obtaining purified ligand.
  - 11. An expression vector containing the polynucleotide of claim 2.

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- 12. A host cell containing the expression vector of claim 11.
- 13. A method for producing a protein, the method comprising the steps of:
  - (a) culturing the host cell of claim 11 under conditions for the expression of protein; and
  - (b) recovering the protein from the host cell culture.
- 14. A protein or a portion thereof produced by the method of claim 13.
- 15. A method for screening a library of molecules or compounds to identify at least one ligand which specifically binds a protein, the method comprising:
- (a) combining the protein or a portion thereof of claim 14 with the library of molecules or compounds under conditions to allow specific binding; and
  - (b) detecting specific binding, thereby identifying a ligand which specifically binds the protein.
- 16. The method of claim 15 wherein the library is selected from DNA molecules, RNA molecules, PNAs, mimetics, peptides, proteins, agonists, antagonists, antibodies or their fragments, immunoglobulins, inhibitors, drug compounds, and pharmaceutical agents.
  - 17. A method of purifying a ligand, the method comprising:
- a) combining the protein or a portion thereof of claim 14 with a sample under conditions to allow specific binding;
  - b) recovering the bound protein; and
  - c) separating the protein from the ligand, thereby obtaining purified ligand.
- 18. A method of screening a sample from a patient for an immune response, disorder, condition, or disease, the method comprising:
- a) contacting the sample with the composition of claim 1 immobilized on a substrate under conditions to allow formation of a hybridization complex;
  - b) detecting and quantifying complex formation; and
- c) comparing complex formation with a standard, wherein a change complex formation indicates the presence of the immune disorder, condition, or disease.
- 19. The method of claim 18, wherein the immune disorder, condition, or disease is a pro-inflammatory disorder selected from viral infections, rheumatoid arthritis, insulin-dependent diabetes mellitus, multiple sclerosis, encephalomyelitis, inflammatory bowel disease, psoriasis, and pemphigus vulgaris.
- 20. The method of claim 18, wherein the immune system disorder, condition, or disease is an antiinflammatory disorder selected from bacterial and parasitic infections, allergies and other atopic disorders, chronic graft versus host disease, scleroderma, and systemic lupus erythematosus.

### ABSTRACT OF THE DISCLOSURE

The present invention relates to purified polynucleotides and a composition comprising a plurality of polynucleotide probes that are modulated in response to cytokines and which are associated with human immune response, conditions, disorders, and diseases. The present invention presents methods for using the polynucleotides, and use of the polynucleotide probes as hybridizable elements in a microarray.

TABLE 1

SEQ ID NO:	Incyte ID	Ct/A	Ct/B
1	068454H1	-3.69	-2.56
2	153958T6	-2.93	-2.63
3	155870R6	-4.06	-1.58
4	182228R6	-1.96	-1.2
5	259836T6	-2.04	-1.43
6	304934T6	-1.38	-1.63
7	308002T6	-1.54	-1.14
8	354516Т6	-1.68	-1.43
9	358832T6	-1.58	-2.43
10	392560T6	-1.32	-1.54
11	395368T6	-2.56	-2.41
12	397122Т6	-3.54	-1.58
13	443631T6	-1.14	-1.58
14	445246T6	-1.68	-1.26
15	460790T6	-2.68	-2.89
16	466711T6	-1.43	-1.2
17	474962T6	-1.2	-1.43
18	495945T6	-1.77	-1
19	498549T6	-2.1	-1.26
20	504202T6	-2.48	-2.35
21	510950T6	-2.35	-2.14
22	516616T6	-1.32	-1.63
23	519083T6	-2.56	-1.68
24	567572T6	-1.32	-1.72
25	633724T6	-1.38	-1.85
26	666761R6	-1.38	-1.26
27	709070T6	-2.07	-1.54
28	993224T6	-1.54	-1.2
29	1234795H1	-1.68	-1.81
30	1274557F6	-2.17	-1.43
31	1304655F6	-1.32	-1.26
32	1318881T6	-1.58	-1.43
33	1404348T6	-1.96	-2
34	1415624T6	-1.77	-1.81
35	1437809T6	-1.43	-1.38
36	1438157T6	-1.63	-1.26
37	1439529Т6	-1.54	-1.81
38	1454203T6	-1.14	-1.38
39	1479279F6	-1.14	-1.68
40	1487763T6	-1.68	-1.26
41	1508830T6	-1.81	-1.63
42	1510668F6	-1.07	-1.81
43	1557279F6	-2.74	-3.1
44	1561237T6	-1.68	-1.72
45	1562722T6	-2.94	-2.14
46	1629481T6	-1.49	-1.32
47	1638102F6	-1.96	-1.26
48	1643115H1	-1.93	-1.07

Table 1 Page 1

SEQ ID NO:	Incyte ID	Ct/A	Ct/B
49	1647985T6	-2.38	-3.05
50	1648034F6	-2.17	-2.23
51	1674289T6	-2.51	-1.72
52	1685691T6	-1.54	-1.89
53	1693719T6	-1.58	-1.72
54	1695667F6	-1.58	-1.43
55	1704982T6	-2.23	-1.49
56	1713873T6	-1.96	-2.2
57	1755881F6	-1.85	-1.85
58	1801605T6	-3.14	-2.26
59	1809609T6	-1.54	-1.14
60	1851506T6	-2.2	-1.54
61	1856531T6	-1.58	-1.68
62	1873492T6	-1.72	-2.29
63	1879193T6	-1.20	-1.58
64	1880542T6	-1.89	-1.07
65	1880666F6	-1.32	-1.38
66	1881257T6	-1.43	-1.2
67	1900194T6	-1.72	-2.51
68	1908377F6	-2.07	-1.38
69	1909861F6	-1.2	-1.49
70	1911715T6	-1.14	-1.96
71	1930135F6	-1.2	-1.81
72	1943678T6	-2.32	-2.14
73	1963968T6	-1.38	-1.2
74	1973066T6	-2.1	<b>-</b> 2.43
75	2016488T6	-2.14	-1.89
76	2025468T6	-1.89	-1.72
77	2054867T6	-1.58	-1.32
78	2073909T6	-2.56	-1.72
79	2102771T6	-2.29	-2.04
80	2121554T6	-2.38	-2.1
81	2134473T6	-1.43	-1.77
82	2208881T6	-2.1	-1.81
83	2211623T6	-1.68	-1.32
84	2216715F6	-3.02	-2.87
85	2239116F6	-1.32	-1.32
86	2242596F6	-2.1	-1.14
87	2264984T6	-1.14	-1.96
88	2299164R6	-1.38	-1.38
89	2299181R6	-3.56	-2.63
90	2328025T6	-1.43	-1.68
91	2370487T6	-1.58	-1.32
92	2376728T6	-2.04	-1.68
93	2478811F6	-1.32	-1.2
94	2486153T6	-1	-1.68
95	2493520T6	-1.85	-1.14
96	2514029T6	-2	-2.23

Table 1 Page 2

SEQ ID NO:	Incyte ID	Ct/A	Ct/B
97	2518676F6	-1.96	-1.54
98	2545961F7	-2.54	-1.89
99	2547841T6	-2.7	-2.1
100	2578906T6	-1.85	-1.32
101	2591681T6	-1.32	-1.26
102	2591814T6	-1.63	-2.07
103	2601127T6	1.89	1.68
104	2603774T6	-1.14	-1.63
105	2630834F6	-1.49	-1
106	2655030T6	-1.38	-1.2
107	2672695T6	-1.2	-1.38
108	2693989T6	-1.85	-2
109	2718743F6	-1.14	-1.63
110	2721122H1	1.54	1.43
111	2735638T6	-1.43	-1.58
112	2739124T6	-1.32	-1.2
113	2747213T6	-1.43	-1.54
114	2752482R6	-1.63	-1.43
115	2757678R6	-1.26	-1.32
116	2765789Т6	-2	-2.17
117	2784742T6	-2	-2.04
118	2786881F6	-1.14	-1.43
119	2790863T6	-1.58	-1
120	2799276T6	-1.49	-1
121	2801448F6	-1.58	-1.07
122	2827489F7	-2	1.07
123	2833430F6	-1.54	-1.77
124	2833844T6	-1.96	-2.14
125	2835032T6	-1.26	-1.32
126	2838139F6	-2.23	-1.14
127	2838241T6	-1.81	-1.43
128	2838993T6	-1.49	-1.85
129	2849791H1	-3.34	-1.93
130	2858295T6	-2.74	-2.66
131	2932975R6	-1.81	-2.14
132	2965657T6	-1.72	-2.63
133	2967286T6	-1.77	-1.81
134	2994210T6	-1.07	-1.68
135	2996094F6	-2	-1.43
136	3000067T6	-1	-2.04
137	3116117T6	-1.49	-1.54
138	3119119F6	-1.43	-1.77
139	3151807R6	-1.38	-1.26
140	3208407H1	-1.63	-1.32
141	3211415T6	-2.26	-1.07
142	3238201T6	-2.14	-1.38
143	3254006R6	-1.38	-1.58
144	3255002T6	-1.2	-1.58

TABLE 1

SEQ ID NO:	Incyte ID	Ct/A	Ct/B
145	3323143T6	-2.1	-2.32
146	3365533T6	-1.38	-1.26
147	3421032T6	-1.07	-1.68
148	3425501F6	-1.07	-1.96
149	3434684T6	<b>-</b> 2	-1.38
150	3471751T6	-1.43	-2.04
151	3475326T6	-1.00	-1.54
152	3480489F6	-1.26	-1.54
153	3559834F6	-3.26	-2.77
154	3562407F6	-1.38	-1.38
155	3586531F6	-2.07	-2.00
156	3685559T6	-1.43	-1.93
157	3738958T6	-1.49	-2.2
158	3809571F6	-1.72	-1.2
159	3817414T6	-1.26	-1.85
160	3875548T6	-1.2	-1.58
161	3992126R6	-1.32	-1.81
162	342907T6	2.23	1.96
163	462533R6	1.77	1.14
164	1554666T6	1.43	1.07
165	1872410F6	2.1	1.54
166	1991934F6	1.43	1.38
167	2264271T6	1.26	1.26
168	2374921T6	1.63	1.54
169	2530696T6	1.85	1.49
170	3092415T6	1.63	1.63
171	3092627T6	2.46	2.23
172	3602715F6	2.56	2.70

SEQ ID NO:	Incyte ID	Ct/A	Ct/B
173	1879094F6	-3.56	0.14
174	3735627T6	-3.28	-0.93
175	1958331F6	-3.26	-0.85
176	3234716T6	-2.74	-0.93
177	2707709T6	-2.61	-0.38
178	3111091F6	-2.61	0
179	1352487T6	-2.58	-0.68
180	1361439T6	<b>-</b> 2.43	0.26
181	1214059T6	-2.35	-0.38
182	182609R6	-2.29	-0.77
183	1930329T6	-2.29	-0.14
184	927117R6	-2.2	-0.68
185	2859369T6	-2.2	-0.48
186	1554387T6	-2.1	0
187	503030T6	-2.07	-0.38
188	2058709T6	-2	-0.68
189	3988515T6	-2	-0.38
190	2888859T6	-1.96	-0.14
191	3169474T6	-1.96	-0.68
192	1865880F6	-1.96	-0.38
193	1440669F6	-1.89	-0.68
194	2995031F6	-1.89	-0.14
195	667705T6	-1.85	-0.68
196	2808826T6	-1.81	-0.26
197	2841974T6	-1.77	-0.58
198	3175296T6	-1.77	-0.77
199	693452R6	-1.68	-0.93
200	2203194T6	-1.68	<b>-0</b> .14
201	2231176T6	-1.68	-0.68
202	2370457T6	-1.68	0
203	2379695T6	-1.68	0
204	2503204T6	-1.68	-0.93
205	1849962H1	-1.63	-0.85
206	2078863F6	-1.63	-0.48
207	3218325H1	-1.63	-0.49
208	2927175T6	-1.58	-0.93
209	1997874T6	-1.58	-0.58
210	2660871T6	-1.58	-0.58
211	2907049T6	-1.58	-0.85
212	3149004R6	-1.54	0.38
213	3269702H1	-1.49	-0.93
214	1929661T6	1.68	-0.14
215	2709044T6	1.77	-1.14
216	3254777T6	1.85	0.14
217	1452827T6	1.93	-0.26
218	3325383T6	2.1	0.26

SEQ ID NO:	Incyte ID	Ct/A	Ct/B
219	3220151T6	-0.49	-3.94
220	3809026T6	-0.38	-3.82
221	065498H1	-0.14	-3.52
222	1417323T6	-0.68	-2.87
223	2410888T6	0	-2.07
224	1552980T6	-0.58	-2
225	2507526T6	-0.77	-1.96
226	3258109R6	-0.68	-1.96
227	1306411F6	-0.48	-1.96
228	708018T6	-0.85	-1.89
229	1713038T6	-0.85	-1.89
230	2226878T6	-0.85	-1.89
231	3483069T6	-0.58	-1.85
232	405967T6	-0.85	-1.81
233	2783681F6	-0.93	-1.72
234	345673T6	-0.68	-1.68
235	2723202T6	-0.49	-1.63
236	3091058T6	0.14	-1.63
237	2762254T6	-0.77	-1.58
238	1501582T6	-0.77	-1.58
239	3282967T6	-0.58	-1.58
240	1966576H1	-0.14	-1.58
241	1859155T6	-0.85	-1.54
242	2652949F6	-0.93	-1.54
243	2589371T6	-0.93	-1.49

# observed TABLE 4 hou

Ct/B	-4.19	-1.26	-1.49	-3.98	-3.02	-3.17	-1.63	-1.14	-3.75	-3.77	-3.15	-2.61	-2.79	-3.39	-2.74	-2.51	-2.61	-2.66	-2.81			-3.05	-2.94	-2.77			-1.93								-	
Ct/A	-4.53	-4.88	-4.8	-3.72	-3.64	-3.6	4	-4.21	-3.36	-3.02	-2.72	-3.19	-3.17	-3.34	-2.81	-3.32	-2.66	-2.68	-3.47	-2.77	-2.94	-3.14	ψ	-2.68	-2.79	-2.87	-2.91	-2.51	-2 61	2 2 6	30.2-	04.0-	21.6-	59.7-	00.2-	-4.3-
	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbprip	gbpri	gbpri	gbpri		gbpri	gbpri	gbpri	gbpri	gbpri	gbinvp	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	ohnri	Sopii.	chnr:	gopii	gopu	gopii	gobri	gopri	goprı	
	g2599547	g2828355	g517176	g339700	g3089604	g2697102	g1060902	g529640	g1732423	g35102	g4071360	g3170363		g1255784	g28333	g189062	g1050524	g31265	g3659883	g4406548	g4929750	g179303	g2072424	g292056	9463549	92765424	4181011	8161711	~1060004	g1000504	g2900012	8338483	g1665812	g36852	g4894623	
Gene Name	Human chloride channel protein 3 (CLCN3)	Human mRNA for lectin-like oxidized LDL receptor, complete cds.		Human polyadenylate binding protein (TIA-1) mRNA, complete cds.	Human activated B-cell factor-1 (ABF-1) mRNA, complete cds.	Human heterogeneous nuclear ribonucleoprotein R mRNA, complete cds.	Human mRNA for phosphatidylinositol transfer protein (PI-TPalpha), complete cds.	Human mRNA for DB1, complete cds.		Himan N-ras mRNA and flanking regions.	Himan hrain mv047 protein mRNA, complete cds.	Human NRAMP2 iron transporter mRNA, complete cds.	Invited FCT	uncyte E.S.1  Luman MAD Einage nhognhatage (MKP-2) mRNA, complete cds.	Human mRNA for alpha-actinin	Limman Na K. A TDase heta. 3 subunit nsendogene. complete sequence.	Hullian Na, N-7-11 asy octars successive for a straight and a phosphory lase.	Hillian IIINAA 101 anama prosprasi mos.	Huilidii E 152 gelie, 5 elie. Dalla acconsisted amotoin Dellino	Hille associated protein remine:	Human CGL-141 protein mRNA complete cds.	Human B12 protein mRNA complete cds					Human mKINA Tor		Incyte EST		Human RING zinc finger protein (RZF) mRNA, complete cds.	Human SR protein family, pre-mRNA splicing factor (SRp20) mRNA, complete cds.		Human mRNA for	Human lymphocyte activation-associated protein mRNA.	Incyte EST
Incryte ID	171/028TK	2641714T6	2842785T6	1376538T6	154741T6	1502915T6	01C1/20C1	303978TK	9192666 917699166	2816984T6	715070182	638749H1	030/47111 640041TE	04004110 740878T6	770072TK	144521056	1443310F0 1806425T6	180043310	185954016	18896/110 1008860T6	19000010 2447237E6	244/33/FO	243221010 2407145T6	249/14310	261283916	508/3516	173757816	1865070T6	2238605T6	2448222T6	2453340H1	2474214T6	2645695T6	2716582T6	3141568T6	510540T6
SEO ID NO.	SECTIONO.	244	2+7 74C	242 747	27.7 87.0	348	050	250	251	252	25.5	457 255	556	057	757	050	657	260	707	797	203	204	597 507	007	267	268	569	270	271	272	273	274	275	276	277	278

## E E E E E TABLE 4

## DEFINE TABLE 4 TENT

ł	00 -1.54	53 -2.32	58 -1.68		07 -2.35		54 -1.58		-2.2 -2.04	04 -1.81	54 -1.63	85 -2.29	54 -1.81	77 -1.58	89 -1.81	81 -1.58	72 -2	32 -2.17		-2 -1.93	77 -2.04	81 -1.54	58 -1.81		72 -1.77	81 -1.77	85 -2.07	58 -1.2	72 -1.26	54 -1.38	54 -1.49	54 -1.38	53 -1.38	96 -0.58
-1.63	-2.00	-1.63	-1.58	-2.43	-2.07	-1.89	-1.54	-1.68	4	-2.04	-1.54	-1.85	-1.54	-1.77	-1.89	-1.81	-1.72	-2.32	-1.72		-1.77	-1.81	-1.68		-1.72	-1.81	-1.85	-1.68	-1.72	-1.54	-1.54	-1.54	-1.63	-1.96
gbpri		gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri		gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbpri	gbeuk	gbpri	gbpri	gbrodp	gbpri	gbpri	gbpri	gbpri	gbpri	gbrod	gbpri
g984304		g1480967	g337504	g190949	g2314822	g181038	g641957	g3483672	g387656	g3123886	g3413901	g463549		g1209628	g1030876	g36541	g473582	g536843	g1050524	g4099481	g36752	g4128032	g4165324	g3874174	g1575348	g2988343	g205067	g23866	g456258	g1276900	g337515	g1575007	£806767	g596005
Gene Name Human serine kinase (hPAK65) mRNA, partial cds.	Incyte EST	Human synaptobrevin-3 mRNA, complete cds.	Human ribosomal protein S24 mRNA.	Human Jk-recombination signal binding protein (RBPJK) gene exons 1-11, 5' end.	Human X-linked anhidroitic ectodermal dysplasia protein gene (EDA).	Human transactivator protein (CREB) mRNA, complete cds.	Human nonmuscle myosin heavy chain-B (MYH10) mRNA, partial cds.	Human full length insert cDNA clone ZD54A10	Human SS-A/Ro ribonucleoprotein autoantigen 60 kd subunit mRNA, complete cds.	Human serine/threonine kinase RICK (RICK) mRNA, complete cds.	Human mRNA for KIAA0470 protein, complet	Human clone pSK1 interferon gamma receptor accessory factor-1 (AF-1) mRNA.	Incyte EST	Human lysosome-associated membrane protein-2b (LAMP2) mRNA.	Human CpG island DNA genomic Mse1 fragment.	Human mRNA for Cu/Zn superoxide dismutase (SOD).	Human camptothecin resistant clone CEM/C2 DNA topoisomerase I mRNA.	Human ras GTPase-activating-like protein (IQGAP1) mRNA, complete cds.	Human mRNA for uridine phosphorylase.	Human eRFS mRNA, complete cds.	Human mRNA fragment for T-cell receptor alpha chain.	Human mRNA for ATP-binding cassette transporter-1 (ABC-1).	Human plasma membrane calcium ATPase isoform 1 (ATP2B1) gene.	C08B11.8	Human enhancer of zeste homolog 2 (EZH2) mRNA, complete cds.	Human mRNA for p115, complete cds.	zinc finger protein	Human mRNA for 3D6 light chain variable region.	Human TEGT gene.	Human Rho-associated, coiled-coil containing protein kinase p160ROCK mRNA.	Human ribosomal protein S6 mRNA, complete cds.	Human XIST gene, poly purine-pyrimidine repeat region.	Mouse 76 kDa tyrosine phosphoprotein SLP-76 mRNA.	Human clone KDB2.12 (CAC)n/(GTG)n repeat
1849154T6	1980941T6	1988078T6	2132606T6	2137446T6	2180426T6	2201912T6	2203287T6	2236363T6	2291484T6	2375549H1	2423808T6	2446704T6	2452667F6	2503017T6	2677105T6	2702380T6	2744270T6	2748823F6	2749472T6	2824491T6	2873229T7	2890054T6	2958621F6	3034495H1	3297413T6	3326096T7	3728208T6	023582H1	089562H1	108485T6	169295R6	261205F1	450739T6	502311T6
314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348

SEQ ID NO:	Incyte ID	Gene Name			Ct/A	Ct/B
349	511666R6	Incyte EST			-1.77	-
350	567649T6	Human mRNA of X-CGD gene involved in chronic granulomatous disease.	g37983	gbpri	-1.89	-1.2
351	701644T6	Human MHC class II HLA-DQA1 mRNA, complete cds.	g184194	gbpri	-1.81	-1.32
352	1237113T6	Human prostate carcinoma tumor antigen (pcta-1) mRNA, complete cds.	g1932711	gbpri	-1.54	-0.77
353	1271372H1	Human Ikaros/LyF-1 homolog (hlk-1) mRNA, complete cds.	g1289370	gbpri	-2.29	7
354	1272733H1	Human chloride channel protein 3 (CLCN3)	g2599547	gbpri	-1.63	-1.26
355	1297406T6	Human mRNA for myeloblast KIAA0136 gene, partial cds.	g1469194	gbpri	-1.54	-
356	1297646T6	Human CpG island sequence, clone Q28B8.	g1408538	gbpri	-1.63	-0.85
357	1369303R7	Human fb19 mRNA,	g2117158	gbpri	-1.72	-1.14
358	1395739T6	Human RNA-binding protein CUG-BP/hNab50 (NAB50) mRNA, complete cds.	g1518801	gbpri	-1.54	-1.38
359	1430425T6	Human myeloid differentiation primary response protein MyD88 mRNA.	g1763090	gbpri	-1.96	7
360	1443824T6	Human mRNA for H-2K binding factor-2, complete cds.	g2326266	gbpri	-1.58	-1.32
361	1482416T6	Human RanBP7/importin 7 mRNA, complete cds.	g3800880	gbpri	-1.58	-1.26
362	1518133F6	Human threonyl-tRNA synthetase mRNA, complete cds.	g339679	gbpri	-2.1	-1.2
363	1556430F6	Human octamer binding transcription factor 1 (OTF1) mRNA, complete cds.	g418015	gbpri	-1.68	-1.2
364	1569648T6	Human mRNA for myeloblast KIAA0068 gene, partial cds.	g559702	gbpri	-1.54	-1.49
365	1642853F6	Human integral membrane protein, calnexin, (IP90) mRNA, complete cds.	g186522	gbpri	-1.72	-1.49
366	1663769Т6	Incyte EST			-1.58	-0.93
367	1666209H1	Human progesterone receptor mRNA, comple	g189934	gbpri	-2	-1.07
368	1697901T6	Human(clone 71) Miller-Dieker lissencephaly protein (LIS1) mRNA, complete cds.	g349823	gbpri	-1.89	-
369	1830604H1	Human mRNA for Hs Ste24p, complete cds.	g3721863	gbpri	-1.68	-1.32
370	1867862T6	Human moesin mRNA, complete cds.	g188625	gbpri	-1.72	-1.49
371	1890182T6	Human mRNA for KIAA0853 protein.	g4240194	gbpri	-1.81	-1.2
372	2072691T6	Human I-FLICE isoform 2 mRNA.	g2827291	gbpri	-1.54	-1.2
373	2176527T6	Human mRNA for KIAA0660 protein.	g3327133	gbpri	-1.72	-1.38
374	2204560T6	Human CD14 mRNA for myelid cell-specific leucine-rich glycoprotein.	g29740	gbpri	-2.07	-1.07
375	2233159T6	Mouse Rel domain-containing transcription factor NFAT5 mRNA.	g5524692	gbrod	-1.68	-1.38
376	2242627H1	Human carboxypeptidase D mRNA, complete cds.	g2462776	gbpri	-1.81	-
377	2326810T6	Human mRNA for KIAA1008 protein.	g4589659	gbpri	-1.58	-1.49
378	2383611T6	Human CGI-84 protein mRNA, complete cds.	g4929636	gbpri	-2.14	-1.14
379	2478839T6	Human epithelial tropomyosin (TM1) mRNA, complete cds.	g339730	gbpri	-1.58	-1.14
380	2498039T6	Human mRNA for ABC transporter 7 protein	g3228278	gbpri	-1.58	-1.38
381	2553130T6	Human 45 kDa splicing factor mRNA.	g3746839	gbpri	-2.17	-1.32
382	2652321T6	Human mRNA for T-cell receptor V beta gene segment V-beta-w22, clone IGRb03.	g33529	gbpri	-1.81	-1
383	2729382T6	Human mRNA for KIAA0313 gene.	g2224567	gbpri	-1.58	7

Human lymphocyte specific interferon regulatory factor 4 (LSIRF/IRF4) mRNA.  Human MHC (HLA) DRB intron 1 DNA, partial sequence.  Human mRNA - DNA DYF725660746	g1378108 g1434908 g4884311 g36893	gbpri gbpri gbnri		-1.26
partial sequence.	g1434908 g4884311 g36893	gbpri øbpri		:
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	236893	0,7.	-1.58	-1.14
7  V(a)8.1/3(a)0.	, , , ,	gbpri		-1.38
otein, complete cds	g3327043	gbpri	-1.81	-1.26
	g52888	gbrod	-1.81	-1.26
	g31091	gbpri	-1.68	-1.14
RNA encoding IkB-like activity, complete cds.	g187290	gbpri	-2.04	-1.43
	g1946346	gbpri		-1.14
				-1.26
Human low-affinity Fc-receptor IIB gene, exons 4-7.	g183089	gbpri		-2.89
sporter2, complete cds.	g3097315	gbpri		-2.72
	g28332	gbpri	-1.43	-2.81
			-1.38	-2.94
stress 70 protein ATPas	3460147	gbpri	-1.00	-1.85
genase form II (FMO2) mRNA, complete cds.	3188630	gbpri	-1.20	-2.04
AKAP-KL; A kinase anchor protein	52852697	gbrod	-1.00	-1.63
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	\$596005	gbpri	-1.49	-1.58
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	31160926	gbpri	-1.38	-1.72
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e cds.	984280	gbpri	-1.49	-1.63
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Human adenylosuccinate synthetase mRNA.	3415848	gbpri	-1.32	-2.00
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419	1888251T6	Human mRNA for fibronectin receptor alpha subunit.	g31437	gbpri	-1.49	-1.81
420	2061030T6	Human SnRNP core protein Sm D2 mRNA, complete cds.	g600747	gbpri	-1.43	-1.68
421	2070387T6	dJ281H8.2 (putative novel protein)	g3947682	gbprip	-1.20	-1.58
422	2107288T6	Human tunp mRNA for transformation upregulated nuclear protein.	g460788	gbpri	-1.26	-1.63
423	2176305F6	Human cap-binding protein mRNA, complete cds.	g306486	gbpri	-1.26	-1.58
424	2198796T6	Human mRNA for DRAK2, complete cds.	g3834355	gbpri	-1.20	-1.58
425	2345762T6	Human L-type amino acid transporter subunit LAT1 mRNA.	g4426639	gbpri	-1.43	-2.00
426	2447063T6	Human mRNA for fungal sterol-C5-desaturase homolog, complete cds.	g1906795	gbpri	-1.32	-1.58
427	2492212T6	Human mRNA for KIAA0516 protein, partial cds.	g3043555	gbpri	-1.20	-1.54
428	2542309T6	Human metalloprotease/disintegrin/cysteine-rich protein precursor (MDC9) mRNA.	g1235761	gbpri	-1.00	-1.72
429	2807227T6	Human mRNA for pristanoyl-CoA oxidase.	g2326548	gbpri	-1.00	-1.81
430	2878786F6	Human TBP-associated factor 172 (TAF-172) mRNA, complete cds.	g2920568	gbpri	-1.26	-1.54
431	2926914H1	Human cytoplasmic beta-actin gene, complete cds.	g177967	gbpri	-1.26	-1.63
432	3141751T6	Human lymphocytic antigen CD59/MEM43 mRNA, complete cds.	g180152	gbpri	-1.38	-1.93
433	3537363T6	Human mRNA for smooth muscle myosin heavy chain.	g532875	gbpri	-1.32	-1.68
434	3967402T6	Human mRNA for myeloblast KIAA0227 gene, partial cds.	g1504033	gbpri	-1.49	-1.89
435	1218810R6	Human mRNA for leucine zipper protein.	g1834506	gbpri	2.07	2.00
436	2747633T6	Human mRNA IFRD1 (PC4) interferon-related developmental regulator	g2706510	gbpri	2.00	1.85
437	3119391T6	Human mRNA for orphan nuclear hormone receptor.	g458541	gbpri	1.72	2.00
438	2052083T6	Human mRNA for heat-shock protein 40, complete cds.	g710654	gbpri	1.68	1.26
439	2701222H1	Human MEN1 region clone epsilon/beta mRNA, 3' fragment.	g2529723	gbpri	1.68	1.49
440	708939T7	Incyte EST			1.49	1.81
441	1964291T6	Human mononcyte/neutrophil elastase inhibitor mRNA sequence.	g188621	gbpri	-2.96	-0.68
442	2455118T6	Human NAD-dependent methylene tetrahydrofolate dehydrogenase cyclohydrolase mRNA.g35070	A.g35070	gbpri	-2.63	-0.93
443	2839121F6	Incyte EST			-2.61	-0.68
444	356774T6	Human myelin basic protein (MBP) mRNA, complete cds.	g187408	gbpri	-1.63	0.14
445	414523T6	Human spermidine synthase gene, complete cds.	g338393	gbpri	-1.77	-0.38
446	1359550F6	Human mRNA for EMR1 hormone receptor.	g784993	gbpri	-2.23	0
447	1521513T6	Incyte EST			-1.68	-0.14
448	1667912T6	Human mRNA for monocyte chemotactic protein-2.	g1924937	gbpri	-1.54	-0.26
449	1694490H1	Human mRNA for LIMK-2, complete cds.	g1805593	gbpri	-1.96	-0.26
450	1818802T6	Human OZF mRNA.	g468707	gbpri	-2.23	-0.49
451	1855389F6	Human pTR2 mRNA for repetitive sequence.	g35994	gbpri	-2.2	0.14
452	1905291F6	Human IAP homolog B (MIHB) mRNA, complete cds.	g1145292	gbpri	-1.54	-0.49
453	1968621T6	Human TNF-inducible protein CG12-1 mRNA,	g3978245	gbpri	-1.63	-0.14

## bbscll.**TABI**gatibo

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454	522294T6	Human Staf50 mRNA.	g899299	gbpri	-4.01	-0.26
455	2469208T6	Human DNA-binding protein mRNA, complete cds.	g2275152	gbpri	-2.38	-0.26
456	2642654F6	LGMD2B; LGMD2B protein	g3560124	gbpri	-1.81	-0.26
457	2651610T6	Human hemopoietic cell protein-tyrosine kinase (HCK) gene.	g183913	gbpri	-1.85	0
458	3558108T6	Human p78 protein mRNA, complete cds.	g190135	gbpri	-2	-0.38
459	3810351T6	Human cig64 mRNA, partial sequence.	g2612974	gbpri	-1.81	-0.49
460	2075438T6	Complement factor B.	g452937	gbpri	-1.93	-0.77
461	1929583F6	alpha-1 (VIII) collagen precursor	g164896	gbmamp	-1.63	-0.85
462	1870501F6	Human carboxypeptidase D mRNA, complete cds.	g2462776	gbpri	-1.68	-0.77
463	1873942T6	Human mRNA for NF-kB subunit.	g35039	gbpri	-1.77	-0.85
464	1865713F6	Human dioxin-inducible cytochrome P450 (CYP1B1) mRNA, complete cds.	g501030	gbpri	-5	-0.93
465	1726703T6	Human rolipram-sensitive 3',5'-cAMP phosphodiesterase mRNA, complete cds.	g433346	gbpri	-1.63	-0.93
466	1738538T6	CGI-44 protein mRNA	g4929556	gbpri	-2.1	-0.85
467	1742602H1	Human hexokinase 1 (HK1) mRNA, complete cds.	g184020	gbpri	-2.04	-0.68
468	1822751F6	Human keratin type II (58 kD) mRNA, complete cds.	g186697	gbpri	-1.63	-0.85
469	1823789T6	Human TRAF-interacting protein I-TRAF mRNA, complete cds.	g1518017	gbpri	-2.1	-0.58
470	3214119F6	Human myotonin protein kinase (DM) mRNA, triplet repeat region.	g189037	gbpri	-1.63	-0.77
471	3230628T6	Human IRLB gene.	g33968	gbpri	-1.68	-0.85
472	2697170T6	Human hH3.3B gene for histone H3.3.	g761715	gbpri	-2.26	-0.77
473	2605603T6	Human BTK region clone ftp-3 mRNA.	g460085	gbpri	-1.96	-0.85
474	2618045T6	Human mRNA; cDNA DKFZp586D1122	g4884381	gbpri	-1.58	-0.93
475	2633001F6	Human pilot mRNA.	g35472	gbpri	-1.54	-0.77
476	2506614T6	Human leupaxin mRNA, complete cds.	g3126970	gbpri	-1.81	-0.58
477	2972510T6	TLR3; signaling receptor; Toll-like receptor 3	g2459626	gbpri	-1.54	0.58
478	2205246T6	Human mRNA for vascular smooth muscle alpha-actin.	g28329	gbpri	-2.32	-0.93
479	1902366T6	Human Hlark mRNA, complete cds.	g2078528	gbpri	-1.63	-0.68
480	1686561T6	Human mRNA; cDNA DKFZp586G0522	g4886510	gbpri	-2.43	-0.77
481	1846209T6	Human mRNA for IFN-inducible gamma2 protein.	g30820	gbpri	-1.26	-0.26
482	2472702T6	Human mRNA for IFN-inducible gamma2 protein.	g30820	gbpri	-1.00	-0.26
483	2746232T6	Human guanylate binding protein isoform I (GBP-2) mRNA, complete cds.	g183001	gbpri	-1.07	-0.26
484	452968T6	Human mRNA for lactate dehydrogenase B (LDH-B).	g34328	gbpri	-1.68	-0.93
485	1491088T6	dipeptidase precursor	g217705	gbmamp	2.04	-0.14
486	1294238H1	Human serum-inducible kinase mRNA, complete cds.	g3075508	gbpri	-0.14	-2.91
487	884512T6	Human NAD+-specific isocitrate dehydrogenase beta subunit precursor mRNA.	g2737885	gbpri	-0.49	-1.72
488	933140T6	Human natural resistance-associated macrophage protein 2 (NRAMP2) gene	g3158426	gbpri	-0.38	-1.63

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Gene Name	Human gene for thrombomodulin precursor, complete cds.	Human RLIP76 protein mRNA, complete cds.	Human mRNA for LZTR-1, complete cds.	Human prostaglandin E2 receptor mRNA, complete cds.	mouse thymidylate kinase (tmk) gene.	Human mRNA for 19kD protein of signal recognition particle (SRP).	Human mRNA for proton-ATPase-like protein, complete cds.	cytochrome P450p-2	Human CGI-107 protein mRNA, complete cds.	Human mRNA for ESP1/CRP2, complete cds.	KIAA0990 protein.	Incyte EST	Human sodium/myo-inositol cotransporter	Incyte EST	Human aminopeptidase N/CD13 mRNA encoding aminopeptidase N, complete cds.		Incyte EST	Human mRNA for KIAA0053 gene, complete cds.		Human interleukin 3 receptor (hIL-3Ra) mRNA, complete cds.	Human mRNA for clathrin-like protein, complete cds.	Incyte EST	Human aminopeptidase N/CD13 mRNA encoding aminopeptidase N, complete cds.		Human mRNA for lipocortin.	Human SBC2 mRNA for sodium bicarbonate cotransporter2, complete cds.	Human MASL1 mRNA, complete cds.	Human orphan opioid receptor mRNA, complete cds.
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## DECLARATION AND POWER OF ATTORNEY FOR UNITED STATES PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name, and

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if more than one name is listed below) of the subject matter which is claimed and for which a United States patent is sought on the invention entitled

### GENES REGULATED BY HUMAN CYTOKINES

the specification of which:
/X / is attached hereto.
/_/ was filed onas application Serial Noand if this box contains an X //, was amended on
// was filed as Patent Cooperation Treaty international application Noon,1999, if this box contains an X /_/, was amended on under Patent Cooperation Treaty Article 19 on 1999, and if this box contains an X /_/, was amended on
I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.
I acknowledge my duty to disclose information which is material to the examination of

I hereby claim the benefit under Title 35, United States Code, §119 or §365(a)-(b) of any foreign application(s) for patent or inventor's certificate indicated below and of any Patent Cooperation Treaty international applications(s) designating at least one country other than the United States indicated below and have also identified below any foreign application(s) for patent or inventor's certificate and Patent Cooperation Treaty international application(s) designating at least one country other than the United States for the same subject matter and having a filing date before that of the application for said subject matter the priority of which is claimed:

this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

Application

Country Number Filing Date Priority Claimed
// Yes // No
// Yes // No

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in said prior application(s) in the manner required by the first paragraph of Title 35, United States Code §112, I acknowledge my duty to disclose material information as defined in Title 37 Code of Federal Regulations, §1.56(a) which occurred between the filing date(s) of the prior application(s) and the national or Patent Cooperation Treaty international filing date of this application:

Status (Pending

Serial No.	Filed	Abandoned, Patented)
I hereby app	oint the following:	
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Adam Warwick Bel	1	Reg. No. 43,490
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Michael C. Cerrone		Reg. No. 39,132
Diana Hamlet-Cox		Reg. No. 33,302
Colette C. Muenzen		Reg. No. 39,784
Lynn E. Murry		Reg. No. 42,918
Danielle M. Pasqual	one	Reg. No. 43,847
Susan K. Sather		Reg. No. 44,316
David G. Streeter		Reg. No. 43,168

respectively and individually, as my patent attorneys and/or agents, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith. Please address all communications to:

LEGAL DEPARTMENT INCYTE PHARMACEUTICALS, INC. 3174 PORTER DRIVE, PALO ALTO, CA 94304

TEL: 650-855-0555 FAX: 650-849-8886

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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	Residence:	Mountain View, California					
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	Signature:						
	Date:	, 1999					
	Citizenship:	AUSTRALIA					
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	P.O. Address:	1215 Van Dyke Drive Sunnyvale, California 94087					

Docket No.: PA-0020 US

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	Signature:					
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	Citizenship:	Indian				
	Residence:	Los Altos, California				
	P.O. Address:	210 Silvia Court				

Los Altos, California 94024

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tgttctccgg gtttggaaca atacgaggtt ggtgctgatg ggatttactt gcgtacgtgc 240
tettcacaaa aacacegtgg atgetgaagt tagagcacgt cgccacagag ettgacatca 300
atgttagagg gtctcttact ccccgcccag ctgtgatgtt tcatctgctt tggttgtttt 360
ggtggtcttt tttaaaaata gagatttcac atctgcccag accccactca aaacgatttg 420
gtcaggttct ggttggacaa gtttaaaatc aagtagtgcc cggaattccc tcaaccaccc 480
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<223> a, t, c, g, or other
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tagaggaagt caccggagca gtcatcaaga tcatctccga aaggatccat atgccaatct 180
catgttgcag cgggaaaagg attgggtctc taaaatccag atgatgcaac tgcaaagcac 240
tgatccctac ctggatgatt tttattacca gaattacttt gaaaaactgg agaaactgtc 300
agctgctgaa gaaatacaag gtgatggccc taagaaggag cgcaccaagc ttatcacccc 360
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<221> misc feature
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<221> unsure
<222> 73-74, 122, 141, 154, 173, 186, 189, 205, 207, 218, 227, 233-234,
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PA-0020 US
236-237, 239, 241, 248, 250, 254, 260, 268, 305, 307, 331, 359, 369, 428, 459,
486, 496
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tncaaataaa cccaaaaagt ntgtacagca tgtntaatag tatgcaatat gcnaaagctt 180
tgtgtngcng ttagcaacat ctatncncac ccaccctntt tattcanaag tgnncnncng 240
ntaaccanan ttanatcacn aagcctgnta gtatgagagg gtcttaaatt tgttaaaact 300
ggaangntct ttgtataggg gctccattca nttgactcaa ggttataggc ttccaccgna 360
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<211> 75
<212> DNA
<213> Homo sapiens
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tgggcgctgg tggag
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<210> 7
<211> 428
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<213> Homo sapiens
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<221> misc feature
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cagcatagag caaaaatgtg aagccaatta acagagaaat catttttggc attattaggc 180
aatcaaaggg gttaactaaa gtgaactgtg gttcagaaat tgagaaattc tttttctttt 240
tgaataaaaa aaggagatga aaaacttcca cttcttctca gtggttactg tagaagatgt 300
ctctttacta aaaaggggtt ttctacattt taaatgagat tcaggctatc ttagggaatg 360
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atattttt
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<210> 8
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<221> unsure
<222> 153, 435, 437
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catgtacaga acacacaatt tagatgaact ganattataa gataaaataa aataaaatcc 180
aatttcagaa aacaaaaatc aaaacattaa ggatccctga aatattctta aaccctaatg 240
agatttcact ggactcaagt cattttgtag tgagacattc acaatatgac gagtggggag 300
aagtgcgagg aaagaaggaa attagtctga ctggctttct gtcctgcacc attgattcaa 360
tgqaqactgg cgggaggaaa tggaagacta gggtggagat gggatgggtg gggccaagga 420
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cttaaa
<210> 9
<211> 573
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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gaacaaaagg aagacgaggc atggactcca ggcttaagtt aacaaggtca gtctgttcag 180
gccaagcaat ggaaaggaag tgtcagatct gtccaatcca tgttcataaa gaggaaataa 240
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tatgtaccac tggggcaggc cgctgataac ggggtgtggg gaagaagggc ataggcagct 420
gaggaccaac cataaaattg tcttcgacga agaaacctgc atgggctgat gaggggacat 480
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<211> 457
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 34, 56, 66, 69-70, 83, 92, 102, 135, 148, 201, 261, 294, 317, 323, 326,
355, 368, 371, 374-375, 381, 399, 403, 409, 439-440, 446
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aattaaataa ctatnaaggg gtacagantt aagagttcca gccttccctc ttggggaaaa 180
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gtaaacctgg gacttingca ggnggngctg ggagctgatg gaattigtaa accangctgt 360
ggtcaagnga nganncagga nctgtaaaca aaggggcant ganccaggng ttgaaggaga 420
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<210> 11
<211> 334
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 395368T6
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<221> unsure
<222> 29, 77, 88, 91, 94-95, 102, 105-106, 153-154, 157, 179-180, 182, 187,
211-213, 219, 229, 255, 260, 270, 274, 279, 286, 291, 300-301, 303, 305, 311,
313, 316, 319-321, 323, 332
<223> a, t, c, g, or other
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cactactgca aaaatanatt atttttancc nccnnactct cnttnnagct ttgcctgctc 120
agateteaat eteaceagta gecetttatg etnnggnttt eteaagaece tettettenn 180
gngagtngac tetteettt teeteeceat nnngetgeng acaattttne attaggttet 240
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ntncnttgct nancangenn nenceaacta quac
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<210> 12
<211> 590
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 72, 145, 179, 293, 314, 375, 425, 429, 438, 467, 484, 494, 500, 533,
559, 568, 574
<223> a, t, c, g, or other
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tatataaaaa angaaaagta taatacagta aatcatcttg tataacatga acttaaagag 120
ttttcaaatt aattatgatc agganaaaaa tgtcttttga acataatact gaatgacant 180
gtcacatgtc cctcatgtca gaggcctggg agtggtgagc ctgcacatgc acqttqcccq 240
tcctccatta cactgcagaa ctgtaaaaca aggttgaaag gcaaacaaca gtnttcttct 300
gatagagtta tgtngggtct taactgaccc caacagttca cactcctcag acaccaaaga 360
aggaaggaag tgtgncctct ggttactcct cttgaaggta agtgtggtca agattgcacc 420
tgtgngtgng atcctacnet teteacaaac acageaggta gggtagnett gagetgaact 480
tcangaaagt tccntgatgn atgttcagtg ttggtatcaa aaaattagac acnaattctt 540
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PA-0020 US
<210> 13
<211> 336
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 443631T6
<220>
<221> unsure
<222> 263, 320
<223> a, t, c, g, or other
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tecgataata tteatagtea aataagttae tttaaattge atgeaataea aetttatgtt 180
ccatagcatc tttaataaaa accgtttacc aaaatggctc ttcaaactta aaaagtgcaa 240
ttacagagtg caaaatagaa ganaatacat tatattacat ttaacatcat caaatttgaa 300
taacagatat ttaaatggan attactcttt ttaaaa
<210> 14
<211> 327
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 445246T6
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<221> unsure
<222> 2, 14, 58, 168, 179, 203, 246, 320
<223> a, t, c, g, or other
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catgaaggtt aaaggcaaag tottagtooc catottatgo tttoccanco tottottgna 180
aactacattg aacctctatg ggntaatcat cgtcttctgt agccataagg tctctgcaag 240
catgongact gcaggetect cagattettt etecattece tcaagtecag tttttaatga 300
acaggctgtt tgctttagan gtgctgt
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<210> 15
<211> 334
<212> DNA
<213> Homo sapiens
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<221> misc_feature
<223> Incyte ID No: 460790T6
<220>
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<222> 8-9, 11, 22, 24, 49, 104, 122, 141, 158, 163, 166, 169-170, 178, 180,
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<211> 353

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182, 185, 191, 199, 214, 216, 218, 221, 224, 229-230, 233-234, 240, 242, 256,
 259, 267, 282, 291, 301-303
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anatcatgtc accattcata nccaatacaa catttttncc atnctnccnn aaaacctntn 180
cncanacact neteatgena ettateagea ettnenanea neengaeenn aennaeacen 240
anacctetta tagagnaene tgtgagngea taacatggae tngatatgge ntcacaette 300
nnntaaagct aaaaaaaaag ataaagaaac gcga
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 <211> 458
 <212> DNA
 <213> Homo sapiens
 <220>
<221> misc_feature
 <223> Incyte ID No: 466711T6
<220>
<221> unsure
<222> 30, 76, 79, 108, 275, 318, 369, 376, 388, 432
<223> a, t, c, g, or other
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cagatatgtg tgctgnaana actttgcctt tttaactaaa ttaatggncc caggaacaga 120
acttggtctt ttacttgcca ttcattgtcc ttcataaggg atggcctccc aacacttaac 180
ttcagctctt caaatacttg tcattaaacc ttctaatact acaaacttac tacccagagt 240
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agatttccna gcaacncatt ctccaggnca ctgattaaca gcacagcatg actctgggct 420
aaatgcttgc anaaacagtt gacctgctgg gcatggtg
<210> 17
<211> 403
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 474962T6
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acatttcttc tgctaatgta gaatcatttt tctgctttgt tataattgtt atgaattata 240
cttctggagt tgagatgatt ttgattccta cctaatgtgg tagcgtgcac aatagaaaaa 300
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<210> 18
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PA-0020 US
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<213> Homo sapiens
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<221> misc_feature
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<220>
<221> unsure
<222> 177, 184, 275, 311, 346
<223> a, t, c, g, or other
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tagngaagta aggtttctca cactcatcac agccataggg tctctctccc gtgtgagttc 240
tgtgatgtac aatgagcatt gtctttgtaa ggaangcttc ccacagtcac tgcatttata 300
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<210> 19
<211> 289
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 498549T6
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<221> unsure
<222> 16, 71, 124, 263
<223> a, t, c, g, or other
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gatnggaget gtttgetgag aggettgaag gageetteag aggggaatge ageeacteet 180
qccaccacct gccaggagg gagccctgag gacagaaacc ctgatctgac tgtctcccca 240
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<210> 20
<211> 161
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 3, 9, 11, 13
<223> a, t, c, g, or other
<400> 20
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<210> 21
<211> 308
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 510950T6
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<221> unsure
<222> 95, 110, 125, 196, 242, 246, 249, 265, 272, 275, 280, 282, 293, 301
<223> a, t, c, g, or other
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acganaaata agttattctg ttttcatttg ctcccqqacg tcagaagqca gagtttcaaa 180
cagageatet tetaenaeta aaccageteg etteagagge egacagteae eeagtteeag 240
angggnggnt tcaaagtggt taccntttac anctnagtan gnaaggaata gcnaatttcc 300
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nattttcg
<210> 22
<211> 501
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 516616T6
<220>
<221> unsure
<222> 486
<223> a, t, c, g, or other
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PA-0020 US
 <220>
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 <221> unsure
 <222> 7, 19, 95, 148, 162, 232, 252, 278, 336, 376, 389, 461
 <223> a, t, c, g, or other
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ggcaactggg cagctncaaa aagaggcgna tgagttccag atttgcttct tcagctgcca 420
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tatttatatg aggataaagt aataaatctc tgtgctattc aaggaaaaaa aatgaatgct 240
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atttaactgt aaatattact acatagtgta aaacaatttt aaaaaaattt ttacactcta 360
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<210> 25
<211> 289
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 633724T6
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ggagaactgg ggcaggactg ctgcttcttt acgtqtcaat acacttqagg tttcttcttg 180
tttcttcagt cttgggtatc ctagttttgt taataaacct cttccatcag ctcttccaga 240
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<210> 26
<211> 374
<212> DNA
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PA-0020 US
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 198, 226, 342
<223> a, t, c, g, or other
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ctaaaaattgc tatcaggnat ttcacatcgc tgtaattttt gcctgnattc gtaactgaag 240
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<212> DNA
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<221> unsure
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<223> a, t, c, g, or other
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aactggggcc tcggggatga gggnagccgt ccnancngnc cttcttccac gaccatcctt 120
acetteceae ecceaeeget eccattetge agatgagaaa acenaggete egaaaggaaa 180
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<221> unsure
<222> 28, 31, 33, 52, 56, 64, 70, 74, 80, 87, 100, 131, 141, 143, 314, 361,
374, 383, 385-386, 423, 426, 428, 442, 460, 470
<223> a, t, c, g, or other
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<400> 28
tatccaataa qagaatagaa ataaacancc ntntqtttac qqqttqcccc angqtnttac 60
cacngctacn agancactgn gaaccanagg tgtcctacan ttaataaacg catggaaaat 120
gtaaaagaga nactotgagt nanaaagoca tocaatottt toagagtooc atototgaaa 180
catttcaaat ctttatctgt ttacaaatga aactgtctac atgcaaactt taaatgtcat 240
ttttccaccc acaatactca tacctctccc tgcttaacac tggttcccca cacccagaqc 300
catagcaatt acanaacaaa acagtgattt gttgaacaca gtagctctaa agccacgacc 360
naacattatt toontgaaga canonntact atgttagtca totgaacatt ttaccagatt 420
tenaenanga cattatatet anacatatte tgaaggeegn tttaaetean etagt
<210> 29
<211> 277
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1234795H1
<400> 29
qqqaaaaqaq qacttattqt tqtcatqqcc catqaqatqa ttqqaactca aattqttact 60
gagaggttgg tggctctgct ggaaagtgga acggaaaaag tgctgctaat tgatagccgg 120
ccatttgtgg aatacaatac atcccacatt ttggaagcca ttaatatcaa ctgctccaag 180
cttatgaagc gaaggttgca acaggacaaa gtgttaatta cagagctcat ccagcattca 240
gcgaaaccat aaggttgacc attgattgcc agtcaga
<210> 30
<211> 437
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1274557F6
<220>
<221> unsure
<222> 304
<223> a, t, c, g, or other
<400> 30
gtaattaatc ataaatatag aaacagtagt aatacagctg acattaccat ttaattttat 60
attatgaaag caaatcatct gcatgtgcat caaggccagt cctattcaac ctagctttcg 120
aatgctgata tctggttagt atgtcatttt gaagttggca cataactttt ctaaaaaaaa 180
gcagtctttg ttgtttgctt cttccctacg gatgacttct aaaaatatat gacgggtata 240
aaaaaattag ctatattgat catatcaaca ctgtaactgc tgaaatggca ttctaatgtt 300
tgcnttttat tcggacaggc cacatgatgc atagagcctc tttcatgtga cctgtgtcta 360
ctgcttaaat ctttatgctg tgttgatgat attatattga catatgaagc tgtatatggg 420
gatggatttt gtggaga
<210> 31
<211> 325
<212> DNA
<213> Homo sapiens
<220>
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<221> misc feature
<223> Incyte ID No: 1304655F6
<220>
<221> unsure
<222> 17, 50, 69-70, 77-78, 82, 87, 119, 121, 148, 151, 153, 163, 171, 187,
191, 210, 216, 229, 233, 254, 283, 285, 287-288, 312, 314, 316, 318
<223> a, t, c, g, or other
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tetgacagnn ggeaagnngg anggtenggt geeateatat geagagaaag aggeaaagnt 120
ntccaggtca cttggggcta gtgtttantg ngntggtgtc ctngattttg nacaagcaca 180
gcttganaga nttgctgatt ccaaggagen agtttnccct gtcaaaggng ganttcaggc 240
tettaaagga gtanttagtt etgtaetage teagtegtgt aengnannee tagaattgea 300
gccctcaagt gncngngngg gggag
<210> 32
<211> 528
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 1318881T6
<220>
<221> unsure
<222> 403, 449, 499-500
<223> a, t, c, g, or other
<400> 32
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gaaaggaggt ctttttttt tttaacatgg atacaggaaa agaaaactct ccaataaaaa 120
tattgtctaa aaagtttgtt ttgtctgcat gatttactaa atatgtacaa tttcaattca 180
cagcgaaggt aacaaagatt taaacagcca acatcacaaa tgtctcaagt tctaaaaaaa 240
aatcactgtg cacagtttaa caatttaatt gaaaaaacca aagctaagcc ttcagtctga 300
atctttttt atgatggca caagccatgt attttcttca tctttgttac acgatgcata 360
tttcagtgac taaaagcccc ttcccatttt agtatattag gtnatgtcag tacatactta 420
agagaggcat aaattgcctc ttggtacanc aatatgattt tgtgatgtgt tcacatataa 480
tggtcataat aatttaatnn atatatagga atgatcagga tgagtcac
<210> 33
<211> 382
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 1404348T6
<220>
<221> unsure
<222> 50, 75-76, 86, 95, 118, 122, 127, 133, 137, 139, 143, 146, 158, 163,
180, 185, 189, 203, 233, 276, 293, 305, 318, 325-326, 340, 346, 348, 350, 353,
356, 381
```

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<223> a, t, c, g, or other
gaataqatca ttcagtaaaa acatacagta aaaacaaaat gtcttatcan gtacaacttt 60
caaactacaa taatnntgta cettanttac tteentggea cacaagteta acatttgntt 120
tnttaanaaa tanaacncna ttnagncttc taggagentt ttntaataaa gtaattcctn 180
attantttnt ccttgtcaga tanatcacgc acctccaaaa tacaaattcc tanacacagt 240
gagcacgtta cttaaaatga acacttaagt aaattnagta cgtggacagc ccnaggataa 300
gctgncatta tagatgcngc taggnnggcc acaaaccctn agtgcnancn ggnaanagta 360
tatttgcaac tgaattttaa na
<210> 34
<211> 613
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1415624T6
<220>
<221> unsure
<222> 458
<223> a, t, c, g, or other
<400> 34
tagaaatttt tacatcaaag tgtgataacc tcacttacac attgttccat acttacctgg 60
ttttgtttgc atctttctgc aaacattaaa aggagatgga tttgattctg atttttttgc 120
tatggttcat gtaaacagtt gagactgcta cataaagtag gttgttgtca aaggtgaagt 180
ggccacagaa tcccaagaat agaataattc aatttggttt aatgaaattg gtggaggtct 240
tagcagatag ataatccaag actaaatatt gtcttctagg cattttaaaa attaagaact 300
ttgaggtttt cttcatgttg taaacataac ttagaccttg ttggcattaa qtttacaaaa 360
gaaaatatta aaccatgatt tttatcatcc tqcccatqtc aqtatacact ctctttatta 420
tgagaatgaa accaaataat aagcaaaata catcaggntt tcaaattgta ctgcaaagaa 480
ggtcccagct ggtctcttct gggagtgatc taactaactt aagctgaccc tgcgactgqc 540
tgaggataat cccttctgtc cactgcaccg tgcaatgcca cagggtcatg agatgggtca 600
gttcctcttg ctc
                                                                   613
<210> 35
<211> 294
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1437809T6
<220>
<221> unsure
<222> 7, 28, 65, 90, 103, 108, 116, 123, 133, 139, 146-147, 180, 183, 219,
233, 259-260, 263, 280-281, 289, 291
<223> a, t, c, g, or other
<400> 35
gggagangcg agccttctgg gggacggnga caagaatacc qcaaaqaata ccqcaatgqc 60
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gaacngcctt gcatagacac cgaggcgggn tagcggcgcg gcnggaanag gagagngatg 120

<210> 38

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ganaaataac tinggagang aagginncac catcgcctcc atgggcactg cgcggctgin 180
atnaaggcca cagcggccct ccccgcttcg gggggtcang gtgtccactc canatatgcc 240
ttatacattc taatttgann canagtcctt gcatattccn ncatacttng ngtg
<210> 36
<211> 450
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1438157T6
<220>
<221> unsure
<222> 12, 40, 110, 112, 116, 119, 135, 152, 161-162, 194, 205, 222, 241,
244-245, 257, 262, 266, 289, 292, 304, 307, 327, 336, 352, 356, 362-363, 365,
381-382, 386-387, 407, 416, 429, 439
<223> a, t, c, g, or other
<400> 36
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gatgcacagg aggccatagg gtttaggcaa aggggagcac aaaagttgan gntgangcnc 120
tgccatcaaa gctgnggggc ttcaggccaa gnacaggagc nnaggaagcc acaagggagg 180
acattttctg cagntgctga accantagca accaggtcct gngaaagccc tctcttgtgg 240
nagnntaaca gccaggnggg anagcntttc atcctgcaaa gctggggcng anagttcttc 300
tttnaangtg tcatctgcac ttcagcncag gaatcntctt ggctgaagtc cngagngtcc 360
tnncngattc ctgaagtaga nnaacnnccc ggccccaagg aagcgcnggg gcagcncaaa 420
gcccccgant ccactcagna tcttgctctg
<210> 37
<211> 539
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1439529T6
<220>
<221> unsure
<222> 427, 526
<223> a, t, c, g, or other
<400> 37
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cccaatagtt ctctttttgg aggacttttc aattgatgag taaactgctt tagatatttc 180
agaacttcat tccccaaatg aaagctaatc tggacaaact atatattgca tagatttctc 240
tacagattot ttgctttaaa acctaaatgc aactaacata gtgtaatttt aacctatttg 300
ccccacagta aaaactatct gtcctgaaaa atatgatgga tatatcctgt gattttccaq 360
ttaacagaat tgttctactt caaagataat tattatcata tatcaaaata accagctcaa 420
cataggneat tactteagte tttactggae tecataggea tatgaacttg tgeceagett 480
tttacctctt cccacattct cctcctcctc cataagtggg atgggnatta tttaaccta 539
```

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PA-0020 US
<211> 559
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1454203T6
<220>
<221> unsure
<222> 490, 528, 535
<223> a, t, c, g, or other
<400> 38
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agatcagatc agtgtacctc caaacagaga tggaagctac actgcagttc ccaatactac 120
ttcagcatag agcaaaaatg tgaagccaat taacagagaa atcatttttg gcattattag 180
gcaatcaaag gggttaacta aagtgaactg tggttcagaa attgagaaat tctttttctt 240
tttgaataaa aaaaggagat gaaaaacttc cacttcttct cagtggttac tgtagaagat 300
gtctctttac taaaaagggg ttttctacat tttaaatgag attcaggcta tcttagggaa 360
tgagcatttg tcttttcata tgattagtgt ctaccccaag aatagttcca ttgatgaaga 420
ttttctatat tttttcatat ctagctatgc tatttcctca tgaaagtcca agacttttta 480
tgactgtggn aattttagaa tatacatgaa tgatctttca gagtcacnat tttgncataa 540
tcggtaaaaa aacttattt
<210> 39
<211> 456
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1479279F6
<400> 39
aaactatgaa tagactgacc cagctggaaa gattggattt gggaagtaac gaattcacgg 60
aagtgcctga agtacttgag caactaagtg gattgaaaga gttttggatg gatgctaata 120
gactgacttt tattccaggg tttattggta gtttgaaaca gctcacatat ttggatgttt 180
ctaaaaataa tattgaaatg gttgaagaag gaatttcaac atgtgaaaac cttcaagacc 240
tectattate aageaattea etteageage tteetgagae tattggtteg ttgaagaata 300
taacaacgct taaaatagat gaaaaccagt taatgtatct gccagactct ataggagggt 360
taatatcagt agaagaactg gattgtagtt tcaatgaagt tgaagctttg ccttcatcta 420
ttgggcagct tactaactta agaacttttg ctgctg
                                                                   456
<210> 40
<211> 129
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1487763T6
<220>
<221> unsure
<222> 26, 44, 51, 55, 57, 66, 78, 87, 89, 100-101, 104, 110, 113, 128
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PA-0020 US
<223> a, t, c, g, or other
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ttgttncatt ccaagatnat ggtgtangng ttacaccccn natnttcatn tcnacattct 120
<210> 41
<211> 100
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 1508830T6
<220>
<221> unsure
<222> 29, 35, 42, 45, 51, 53
<223> a, t, c, g, or other
<400> 41
acctcgtgcc cacacagtgc ctgtctgant ccttntgttg cncanatgtg nancaggctg 60
gcagagactt gaagcctgtg gttttgtgcc tcctttgtgt
                                                                   100
<210> 42
<211> 502
<212> DNA
<213> Homo sapiens
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<221> misc_feature
<223> Incyte ID No: 1510668F6
<220>
<221> unsure
<222> 254, 462
<223> a, t, c, g, or other
caggcatcct ctggggtgta tttggggcgc tcaacaaggc ttgatcgagc tttgggggta 60
gatctagcta ttccatgggg attcttttca gaattgctgt tttcggtaac taattccatg 120
accaggteea tggeattgga tgacattgeg etacactgtt geteaccegg gteaccegte 180
ctcacaggtt ggatggcaag catgttgtgt tcggtcacgt caaagagggc atggacgtcg 240
tgaagaaaat atantettte ggetetaaga gtgggaggae atecaagaag attgteatea 300
cagactgtgg ccagttgagc taatctgtgg ccagggtgct ggcatggtgg cagctgcaaa 360
tgtccatgca cccaggtggc cgcgttgggc tgtcagccaa ggtgcctgaa acgatacgtq 420
tgcccactcc actgtcacag tgtgcctgag gaaggctgct anggatgtta gacctcggcc 480
aggacccacc acattgcttt cc
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<210> 43
<211> 581
<212> DNA
<213> Homo sapiens
<220>
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PA-0020 US
<221> misc feature
<223> Incyte ID No: 1557279F6
<220>
<221> unsure
<222> 564-565
<223> a, t, c, g, or other
<400> 43
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ttttcaccaa ttaatatgca ttgttctgtt gtttttattt atgattgatc attatatgtg 120
acttgcataa actatttaaa aaaaaaacta taatgaccaa aatagccatg gctgagaaac 180
acagtggctg ggcagttcaa taggaggtga caatatgaca acttctcaag cttgggaact 240
caccagactg tttcctcctt taggtaacag attctgtccc acggctaaac ttgtctttca 300
cgtgggaatt gcttttgtca aacgtgaaag agtaaacaat agcatttccc cagaatgcca 360
gttttatgga gccccaaatg ctctgaaaac aattagtaac ctggaagttg tcagcccaaa 420
ggaaagaaaa atcaattgta tottgaaatt ttacctatgg ctctttggcc tggctctttg 480
ttcattataa gttagtgtgt ccttcaggaa caatgccctt aataccatag aacatggggg 540
qccttaatag tqctaacatt aaanngcaac agatgattga g
<210> 44
<211> 423
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1561237T6
<220>
<221> unsure
<222> 152, 385, 399
<223> a, t, c, g, or other
<400> 44
tqattqaaat aaaccaagca ttgttgggct gaattatgga gagacccgag gagtgactca 60
gcctaaagcg ttgacccagt tgtgagcagc tcacaggccc tgcaggagga gcaggccagc 120
gagggagaca caagcagatt gtcctgccag gnaggggcgg gagggcccac ccaggccaca 180
ggggccacca aagcaaaaaa gcagattatg aggcagcttc acccctccca gcactggggc 240
tggggcctgg cgagggtcac acctctgagt atgggggtgg tgctgggccc ccctctgggg 300
tcttcgatgg caaagacagg gttcctcgta ggacggcagg accacttctg gagcatttgg 360
agtttttttc tcctcacgag tcatnacttg taattgtana cgcacacgac ttgacatgta 420
gac
<210> 45
<211> 534
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1562722T6
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<221> unsure
<222> 18-19, 511
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ggagaagcca ctgtttgttt ctcctgcacc tgctgtctgc catctgtcta ctctttctta 120
actettetet tetggettet getgteattg etetgttgat etgetettet gaactteatt 180
aqtgaccttg tgaatgataa gttcaatagc ctcctctcaa tcccggtcct cctccacctc 240
totagetetg efeteetet tgaaacatte atggetettg actteteate ttecacetgt 300
ttgattctgc tccagcacct tgatcaatgt cttcctccta ccctttgtct ttaaatgcag 360
gtgccccgag ggctctgtcc ttggttctga actcttccct ccatgttttc acttcttgct 420
gggttccagt taatctctct acacacattc ctctccagcc ctcaacactc tggctaaccc 480
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<210> 46
<211> 221
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1629481T6
<400> 46
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gaaatacaag caggactaac cagacacaca tctcataatt tccagtgtca ctgtacaatc 120
atattaacag tggtcagttt ttttcaatcc acagaaaagc aagcagacaa accaaggcac 180
ttaaatgtca cttggctaat gacactcatt tcaaccctcg a
                                                                   221
<210> 47
<211> 423
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 1638102F6
<400> 47
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acattaagac tgtaccttca aactgtgttg ttccatacag tagccctagt catgtgtggc 120
taaacttgaa ttaacaaaaa ttgaataaaa tttaaaattc agttcctgag gtgcactaat 180
aacatttcaa tggctccaga gtaacatatg gctggtggct actgtattag acaatacaga 240
atggtttcat catcacagaa agttctgctg gacagtgctg agttggaacc aggtgttctt 300
tacacacaga ccacttaaag actgaggttt tatttataca cctgagtttt ccaagcactt 360
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cgc
<210> 48
<211> 214
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<223> Incyte ID No: 1643115H1

<220>

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PA-0020 US
<220>
<221> unsure
<222> 48
<223> a, t, c, g, or other
<400> 48
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taacagatga agatgtctgc catgagttgg aaggacctat ctcctctcaa gagaccagtg 120
ctacttcagg gactaagaga attgatctca qccgaataag cctggaaagt tctgcatcct 180
tggaaggatc tctgtcgaag tttgccttac ctgg
<210> 49
<211> 427
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1647985T6
<400> 49
tttattacaa ccccctttca gaaacaaacc ccaaaacaac acagagttat aaagtgaaga 60
gttttctttt tgataactga aaatatctac aatgttttcc attccattat agattaccat 180
tocatttgca ataattacaa acacatacat attotacqtt tqcaaaacaa qattccatct 240
qtactetete etqacacaca cattacettt qtetetaqte ttteactaca aattaggeet 300
ttgaaatata tatccttctc cactccattt gtagatagct tatctcccat tgtatcctat 360
cattgccaac catcagaggt aggggcacct tttctttctg acccacactc ctacacttac 420
tatttct
                                                                427
<210> 50
<211> 520
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1648034F6
<400> 50
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ttotttotaa taaaatgaca aagcaggttt ottaaataat ttacaaaggg cagaaattgc 120
tettgaacag ggetaeeeet eetggeacat eeacagtget etgeatgage atataaatag 180
gtaccogtga gcccagggtc gtaagcctgg aaatatctcc tatgccttcc tccgagtccc 240
tggtagggaa aggagggatg agagtggggc cctcaagagc cttggcacca gaaacacagt 300
gggtgagtga etetgeggat gaeteeceaa aaaceaggea eeegggtaca gagetaagag 360
ctctcaaata tctgatgcta gcattcatgt tatagatgag gcaaatagaa ggctcaaggt 420
caaqtqtacq atqaqtttct aaqctcaaqa qtcccctaqq aaaqcaqaaq gaacaattct 480
                                                                520
cccctctgc aaggtctccc caagacactc tcaggctatg
<210> 51
<211> 320
<212> DNA
<213> Homo sapiens
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PA-0020 US
 <221> misc feature
 <223> Incyte ID No: 1674289T6
 <220>
 <221> unsure
<222> 31, 67, 69, 71, 75, 79-80, 83, 87, 89-91, 94, 127, 141, 166, 169, 172,
175-176, 182, 196, 200, 206, 219-220, 223, 225, 227, 243, 261, 270, 274, 276,
288, 293, 305-306
<223> a, t, c, g, or other
<400> 51
tgatatagct atttttgtaa gaacatcctc ntggactttg ggttaattaa atctaaactt 60
atttaangnt naacnaggnn aangtgnann natntgctaa aagaatcaag taataattac 120
ttagctncat tcctgagggt ngtatgactt ctagctgaac tcatcntgnt cngtnngatt 180
tnttaaatcc cttttngtan acctanttcc acgaaattnn aanancnttc acttcagaaa 240
ggnaaacagt tgttggggct nagcacttan tttncntgag caggaagnag ttncttccaa 300
acttnngcca tctggatact
                                                                   320
<210> 52
<211> 619
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1685691T6
<400> 52
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caaagccact aactttaggg cacatgtgga tttggtggtt tttcttaggc tacaaatcat 120
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aattttcata tatacgtcaa acctgctttt agggtagttt agtcaaagct gaaacaaaac 480
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<220>
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<222> 133, 136, 522, 560
<223> a, t, c, g, or other
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eggeggeaea tactteeetg tettqttetq eqtqqeetqe acegqeteta qetetqqqqa 420
ccaaaagaca gtcaagttca acctcactgt ggcgcaggcg tggggacaga accgccccag 480
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<211> 527
<212> DNA
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<211> 497
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<222> 416
<223> a, t, c, g, or other
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aattcagcat ataagtcatt atattagaaa attccattaa aaacctatag aaggtnaaat 420
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PA-0020 US
<211> 397
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<220>
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<222> 20, 39, 56, 63, 74, 96, 105, 154, 166, 168, 171, 180, 183, 190, 274,
280, 286-287, 296, 303, 305, 309, 314-315, 324, 343, 349-350, 364, 381, 393
<223> a, t, c, g, or other
<400> 56
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gcacatttgt gccattttct gtaattactg agtnacaatg tctgancntt naagcatgan 180
acntattgtn caaactgaaa ctgacatcag taagaggcct aacaagtgtt atcagaagag 240
gcctcacatt tgcgtaattt gctacatcag ttcncatttn attatnnaaa ttcacnttgt 300
ttnantggnt tctnntgtaa tganctggaa catgacattc ctncttaann gcaggcagga 360
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<210> 57
<211> 466
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<220>
<221> unsure
<222> 25, 359, 392, 402, 407, 409, 421
<223> a, t, c, g, or other
<400> 57
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ggaggggtga tgtggattta tgtcttgtgt ggctgatgat ggtggatgtt ttcaggtctc 180
tctgaagagg ctatcatgga gctgaacctg ccgactggta ttcccattgt ctatgaattg 240
gacaagaact tgaagcctat caagcccatg cagtttctgg gggatgaaga gacggtgcgc 300
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<211> 517
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<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1801605T6
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ataaccaaat taaacaacag aattttaact aatattggct ttttgggatt tcttaagaaa 180
agattcacaa gcattgctca gctactggag aataattaaa tctcttcttt actcaggcac 240
ttttaatgca gtaacctcag gcttcatttt aaagtactgg ttaaaacgaa caattgcata 300
cccaaggaaa tcaaactcaa tagtggagta tttggcttga atcaaagccc acaatcccca 360
aaagaaatga gaagccaatg caaactgatt gacttgaatg aagagtattt ctacctcctt 420
ttcagtaact tcagtcccaa agcccttaaa ttctttgtag gcttcaaggt aagcacgcag 480
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<210> 59
<211> 469
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 1809609T6
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acattttcca aagacaccag agggtctgta tagtactgca aagcaggact gaatcccttc 180
tgctqcaaat actggattcg accttqgtca atcagcaatt tacaaagatg ccctattttc 240
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<210> 60
<211> 121
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 7, 18, 22, 30, 40, 61, 63, 71, 75, 83, 90, 96, 110, 117
<223> a, t, c, g, or other
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<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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ctgcaaactc cgcctcctgg attcaagcga ttctcctgct tctgcctccc gagtagctgg 180
aattacaggt gtgtgccacc acacccagct aatgttttgt atttttagta gaggcggggt 240
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cgtcccgaag tgctggaatt acaggtgtga gccactgtgc ttggtctatt tttaaagtag 360
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<211> 584
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 1873492T6
<220>
<221> unsure
<222> 506, 571, 579
<223> a, t, c, g, or other
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atatggacac aaaagtttag tggttttatt gcattgttag aaaattatat tatgaaagat 180
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gagaattcac cgtaacattg ccatttttt cccaagttgt taatgtgact gagtgtccac 420
atgcaacctg tatcgtctac tgcatctaac atacttattt ccttatttaa aattagttaa 480
gcagtaagct atagcaaact gttaanaaaa attacaggat ggcgaaccaa gactggtatc 540
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<210> 63
<211> 473
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1879193T6
<220>
<221> unsure
<222> 3, 5, 16, 56
<223> a, t, c, g, or other
<400> 63
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aggttggggg taatgctaac gtcaccctca cagggatggc cacggggact gttattcgca 180
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agctggtttt ctagacctgt tagctggaag catggtgagc accatttctg gacgctcagg 240

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<212> DNA
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<220>
<221> misc feature
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<220>
<221> unsure
<222> 6, 8, 10, 15, 29, 33-34, 43, 54, 64, 66, 70, 90, 92, 119
<223> a, t, c, g, or other
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cacattt
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<210> 65
<211> 341
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1880666F6
<400> 65
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teceetetee cateteetga gaetgatete tggagttagg etgtggtgte ttaacettgg 180
ctgtacactt cactagcagt ggagcaagtg aatagatacc aagtcctgtg agcagtgctt 240
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<210> 66
<211> 473
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 21, 382, 449
<223> a, t, c, g, or other
<400> 66
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<221> misc feature

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aaatggaatg catctgtaga tatatagttg ggaatgcgtg ttcaqtcact tqqctctqtg 180
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<212> DNA
<213> Homo sapiens
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186, 191, 193, 206, 216, 218, 220, 231, 239, 244, 247, 250-251
<223> a, t, c, g, or other
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<210> 68
<211> 369
<212> DNA
<213> Homo sapiens
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<400> 68
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aaggcatcat ctctttcaac gtataaaata gcagaacaag atttttctta tttcttccct 180
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<210> 69
<211> 202
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<213> Homo sapiens
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PA-0020 US
<223> Incyte ID No: 1909861F6
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<221> unsure
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<223> a, t, c, g, or other
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<212> DNA
<213> Homo sapiens
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<223> Incyte ID No: 1911715T6
<220>
<221> unsure
<222> 187
<223> a, t, c, g, or other
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<210> 71
<211> 215
<212> DNA
<213> Homo sapiens
<220>
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cctgcgattg taaagtgatt taagtatttc tgggtagtgt ttgtgattta cggatttgtt 120
actgaaaaac aaaaaaaatc actactgtga atttactact atgtaacctt gtggtcgtat 180
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<210> 72
<211> 533
<212> DNA
<213> Homo sapiens
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PA-0020 US
<221> misc feature
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<221> unsure
<222> 122-124, 384, 465
<223> a, t, c, g, or other
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tecacaaatg eteatgatge gggeaaatte tgetttetee catgntqtaa eecatgqaqa 480
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<211> 367
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ttccagcaac ataacaactt actgagccca gtgtacacag acctgcaagg agatggagaa 360
tgcccgt
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<211> 469
<212> DNA
<213> Homo sapiens
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<221> misc_feature
<223> Incyte ID No: 1973066T6
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<221> unsure
<222> 204
<223> a, t, c, g, or other
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tataatctat aaagcaaaca tttaatattg cactttgttt tgctaacatt ttggatttta 180
cttttcctaa ttgaaaaatc aggnatctat cttgaatact ggaatacaac tgtgaacctc 240
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acatcttatg tcaggaattg accaatattt ttaaaaaagt aatgcctcta aagaaataca 300
ttttaaaggg gaaaataaaa ctttatttga taaagtttta tacatttaaa gttttatcac 360
attitgtgat ccagtgccaa ttatcagaat attggtcatt cttgcttcat gtgttatttg 420
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<211> 510
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2016488T6
<220>
<221> unsure
<222> 499
<223> a, t, c, g, or other
<400> 75
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gtaacttcat gaatatagcc tgtgatcagc atatgtccca tagcttatat gccctctata 360
cctccagagt tgcataataa acttttaaca ataaaacaac aacgaatatc aggttgtaaa 420
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<211> 65
<212> DNA
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<221> unsure
<222> 5, 14, 18, 37, 51, 53, 59
<223> a, t, c, g, or other
<400> 76
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<210> 77
<211> 454
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PA-0020 US
<220>
<221> unsure
<222> 49, 65, 275, 301, 306, 330, 360, 377, 429, 431
<223> a, t, c, g, or other
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tcaccggaga tgactcgtgc tctagttctt aaaatcaaac ttgttctgcc aaatccaaga 180
ccctqaattt gtccaaattg tagaaacatg cttttaccac ccgtccacca aaatacctcc 240
cattcaagtc aacaaccgct ttaattgctg attcnactct ctcaaattct aaaaatatcc 300
ntactnette ateateaggg ggeaceaggn attteaaata teacacattt tecaactttn 360
gccatatttt tcacatnctt ccttggtttc aacttccaag tcttcatcca cctctcccgc 420
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<210> 78
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<222> 24, 56, 68, 70, 74-75, 79, 111, 116, 123, 128, 131, 136, 139, 141,
146-147, 151
<223> a, t, c, g, or other
<400> 78
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gcataggngn tcgnngagnc cttggcagga ttgatgagct catctgccag ntactnagca 120
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<210> 79
<211> 89
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<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 2102771T6
<220>
<221> unsure
<222> 54, 59, 66
<223> a, t, c, g, or other
<400> 79
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gcaganaagg gtttcaaata ttgttggca
<210> 80
<211> 522
<212> DNA
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PA-0020 US
<213> Homo sapiens
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ccctaaacta tatacatcct acaggaatac aggcattatc aaatgtagaa atggtatcac 120
totgaaagat ggggctattt acacaagtta caagaattgc gttgctqtct ttaaqaaqtc 180
tcctccttga ataactcata aactctaagg gagagagagt actggtgggg aagcggggtt 240
caaaqaqqaq acatcctcca tctttattqa tqqacaaqac aqtctcaaqq aaaaacatca 300
atatccaaac accgtattga gtcccttaac aaggctccac agatcagctg gctttcaaaa 360
agcctggaag ggtgctccac tcaggaactc ccaagagaaa ccatcttgtc cctcagccag 420
gctgggactg gcagtgaggc catgctgagc cagtggcaaa cccgtgggct gtgggtttca 480
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<211> 573
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2134473T6
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<210> 82
<211> 431
<212> DNA
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<221> misc feature
<223> Incyte ID No: 2208881T6
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<221> unsure
<222> 49, 97-99, 157, 166, 225-226, 236, 242, 258, 279-280, 283, 289-290, 297,
307, 323, 368, 387, 396-398, 400, 417, 429-430
<223> a, t, c, g, or other
<400> 82
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ttaaataact atcaaggggt acagagttaa gagttcnagc cttccntctt ggggaaaact 180
aaggcaaagt aatactgaga aaaagtggag gaagccacac cttcnngtca ctccantgag 240
gncgactgga ggggacanag gagagaattc cccgcagann cancaagtnn qcqtqqnttc 300
taaaccnggg actttggcag gtngggctgg gagctgatgg aatttgtaaa ccaggctgtg 360
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<210> 83
<211> 406
<212> DNA
<213> Homo sapiens
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<222> 200, 223-225, 238, 242-243, 275, 278, 289, 299-300, 312, 315, 361, 376,
387, 389, 395, 404
<223> a, t, c, g, or other
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gttgtttctg cttatcccca cagcttacag ggaggggagt gacccccttg gttttccagg 180
aagcatcagt tcaggggcan cttcctgctg atctgttctt tgnnngagac qqqcaqcntc 240
tnnggacatg gcccagcctg ccccagaaga gctanttngt agtgtttang gagcccgtnn 300
tcaggaatct tntcntccga gcagctcctc cccgagacac tgtccagatg ctccagctca 360
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<211> 361
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<220>
<221> unsure
<222> 28, 57, 78, 245, 264, 266, 293-294, 296, 303, 320, 352
<223> a, t, c, g, or other
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accagatgga agtatgggta gtattacctg catcgcttgg aaaqqtgata cattagtgct 180
tggagatatg gatggaaatt taaatttctg ggacttgaaa ggcagagtat ccagaggaat 240
accencacae egaagttggg tgangnagat tegttttget eetggtaaag ggnnenaaga 300
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<210> 85
<211> 196
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PA-0020 US
<212> DNA
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<221> unsure
<222> 122, 130
<223> a, t, c, q, or other
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anggottggn tggcotttac ttgagactga ttttttcact gaggocacat gatcttcaga 180
gattgcaaga cgcctc
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<211> 359
<212> DNA
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<220>
<221> misc feature
<223> Incyte ID No: 2242596F6
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<221> unsure
<222> 15, 23, 129, 145
<223> a, t, c, g, or other
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tgctctggng cttccagggc gttangactc atgcaccgga cccgttaacg cgttgattcg 180
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<211> 481
<212> DNA
<213> Homo sapiens
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<220>
<221> unsure
<222> 303, 321, 346, 351, 368, 417, 426, 459, 463
<223> a, t, c, g, or other
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<212> DNA
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<220>
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agatcattta ggatactctt aatctcactt catcaatcaa atattttttg agtgtatgct 180
gtagctgaaa gagtatgtac gtacgtataa qactagagag atattaagtc tcagtacact 240
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aaqccaaqaa agtataaqqq tcacaagtct aaacaatgaa ttcttcaaca gggaaaacag 420
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<210> 89
<211> 435
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 328, 361-362, 368, 371, 373, 382, 385-386, 389, 395, 397, 402, 430
<223> a, t, c, g, or other
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gctgcaccat acgtccctga ccacaaggca tccacgtgca caggagtatg cgcccagcag 120
ctgggaagga ggctgacctc agacggtggc ctgtggatcc cagctctgtc atttcctggc 180
tgggtgacct caacctagtc accetttttg agtettgttt teteagatta tgaaatagga 240
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tgagctgcat gtgaatccac acatgccntt ccatgaaqac atcaaaqaqq atcatgtqqa 360
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PA-0020 US
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 <223> a, t, c, g, or other
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 tcncnnttnn aant
 <210> 91
 <211> 460
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 <221> misc feature
 <223> Incyte ID No: 2370487T6
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 tcttagggta taagaaggga taatagcata cctaaatcct tatggaaata qaaacattct 180
aagggggatg caacaatttt gaaaagaatt agagcaatat ttctacagta ttacattatt 240
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 gacacatggc tctttggaaa atattttacc tgatatatac aaccacaaga agaaaacaca 360
 gacaaatggc tttagtcaat gattactata cagtgaatga atgatgtgca acatttaata 420
 gtcacaaagc atttgctttc agtacagata atggaataca
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 <213> Homo sapiens
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 aaagccaaag tatttccaaa tcatgtgttt ttgttactgg tgtcttaacc attagacagg 240
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 ttaaaacaaa catcttttcc caaccttcca agaaaataac ctaaaaataa acaagaaaca 420
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 <211> 500
 <212> DNA
 <213> Homo sapiens
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1,2 3

PA-0020 US

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gagaaaatga attgcaatca tcaaatggtg tttcataact tggtagtagt aacttacctt 180
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atttcatagg ttacatttcc tgcagcctat ctttatccac agaaaqtqtt ttctttttt 420
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<210> 94
<211> 557
<212> DNA
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ttaaatctgg tatttttct ggacgttctt ctttcacatg atttattgta gattgaacag 240
cctttacata atggtttagt tgccgatcca atgtagcaaa ttcaaccatt qccttgtcca 300
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ctgtgtccat accagagttg atacaggctt ggaagttttt caaggaggag agagcagact 420
ctacaccact gaaggagatg aaaccagttg aacctgaatt tgaactggaa cgtcctggca 480
tcttgaaatt agtacctggg ccaccaaaac acagctggac tcaatatatg gggaaggtaa 540
gtgtcctcag tttttgg
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<211> 252
<212> DNA
<213> Homo sapiens
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<222> 3, 5, 8, 12, 15-16, 23, 25, 32, 50-51, 61, 63, 71, 73, 83, 85, 91, 157,
162-163, 167, 185, 195-196, 217, 221, 238, 246
<223> a, t, c, g, or other
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nanaacttat nanagtgtat ctnanaaaca ncccaaatta gggccaggtt acgtgtccaa 120
taagcatttt tcaaactctc cctctgggtg tgtgcgnaca cnncatnagg ctctattaca 180
cacgnateca ageennggee teacacaatg ceacaanttt netgtttgtg egaaatgnet 240
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252
atatanaata ca
<210> 96
<211> 423
<212> DNA
<213> Homo sapiens
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<220>
<221> unsure
<222> 17, 23, 26, 29, 47, 53, 57, 60, 64, 92-93, 125, 130, 132, 134-135, 209,
226, 228, 255-256, 258, 273, 318, 337, 353, 384, 388, 390, 398, 400, 403, 417
<223> a, t, c, g, or other
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egenegtegt teagegeagt gtteategae gnngeeteta ggteeetgga tettggtetg 120
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cccaggcccc tgcagttcct cgccgtctna acagcggaag ctcacntngt tcgctgctgt 240
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<223> Incyte ID No: 2518676F6
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<221> unsure
<222> 35, 271
<223> a, t, c, g, or other
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<210> 98
<211> 430
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
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PA-0020 US
<223> Incyte ID No: 2545961F7
<221> unsure
<222> 124-125, 413
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acatgtacaa tgacacatta aatggcagta cagagaaaag gagtgcagaa ttgcctgatg 120
ctgnngggac ctattgttca gttacaagag aaactttatg tgcctgtaaa agaataccca 180
gattttaatt ttgttgggag aatccttgga cctagaggac ttacagccaa acaacttgaa 240
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gaggagcaaa atagaggcaa gcccaattgg gagcatctaa atgaagattt acatgtacta 360
atcactgtgg aagatgctca gaacagagca gaaatcaaat tgaagagagc agntgaagaa 420
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<210> 99
<211> 505
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2547841T6
<220>
<221> unsure
<222> 261
<223> a, t, c, g, or other
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gccatgatga atgtaaaaat ttaaatatga cacatccttg tcaaagaaaa ggtgcaaagt 240
ctattaacag ctttaaaagt ngcatttgca gagtgtgatc atacagttat gtactcattc 300
ccaaagtgca aatattgcca taatttaaca ctgttttgat tcagttgcaa gaattaaaca 360
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<211> 293
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
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<221> unsure
<222> 268, 290-291
<223> a, t, c, g, or other
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<210> 103

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PA-0020 US
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aatttgaaga ctttatagaa agcggaacat ctaaaaggca ctgcacaatg gagttaagat 180
tacttacatt ttatgtacat atacacactt tactctgctc aagcaggtaa ctagtgaagt 240
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<211> 527
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<213> Homo sapiens
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<220>
<221> unsure
<222> 178, 220, 231, 253, 274, 415, 421, 442
<223> a, t, c, g, or other
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<211> 409
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2591814T6
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<221> unsure
<222> 271-272, 390
<223> a, t, c, g, or other
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gettteeegg cagaaggeee tgeeageeea gagteettag teggataatg tateacagat 120
acaacagteg agcaaccacg agagegttag tgegacagag geetetgtee tecetettet 180
caaagtccca tgattctgtc aaggtaatat tgccaataat cattcacatt tcacgtggtt 240
ttagacacgc aggttattca gacagacaca nngccaaaac aagcctcaaa gccagaacaa 300
aacaaaacaa aacaaaatcg aacataggta taaaaggtaa aatatatgta caaagtacac 360
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PA-0020 US
<211> 397
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acaagaaata acttacaaag gcatgaagct gtttattgac agtaatcagc tttcatcaaa 180
ttaaaaaata tatatatgta catacacagt taacgaaggc aggccagaaa gagttcatct 240
gtaggeteag ectegetete acaaacetee eteetgeege ecetetetea eaggeeeatg 300
cctggttagc tctgacacca gctgaatagg aagcacggca agtttgagac tctcttgcat 360
aaaccataag cctcagtgtc agggacatgt gctgtga
<210> 104
<211> 509
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 2603774T6
<220>
<221> unsure
<222> 334, 370
<223> a, t, c, g, or other
<400> 104
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tgttcatttc tttggcttac aggagagact agacaggaag gccaggcaat gcttaggcaa 120
ctaaaatgag gttgggggta atgctaacgt caccetcaca gggatggcca eggggactgt 180
tattogcaag ctggttttct agacctgtta gctggaagca tggtgagcac catttctgga 240
cgctcaggcc gtgtcgggct tcagtcatct ccaccacaca ggtacagcag cgctttctgg 300
tagtcgccct tagtgtcttg ctacaatggc ccangaaaga aaagaaacgt ggtatcagaa 360
aaaagcccan actcctcaat aacacagaag tagcctcaac gcacaatgaa agcttctccc 420
atgacaaaga gaagactctg caggagacct gccctaatac aaaggcctgg aaggccagca 480
cccaaaccat tgccagggaa gccttccag
<210> 105
<211> 497
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2630834F6
<220>
<221> unsure
<222> 8, 17, 35, 68, 195, 209, 212, 216, 224
<223> a, t, c, g, or other
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<400> 105
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taatttcatt tatatttcta attcacttgg aacctttctg ctttatggta cctagaaaat 180
gataatttgt gtaanccaaa acttctaana tnaatngctt aatncttgaa atatgttatt 240
ggaaaatttt aagcagtgct taaacaccat taaattatta tgaacttgta attcagaatt 300
gagtaaagaa atattttttc tagtccttca tatattgaaa acttgccaca tgacattgta 360
tcgtcttcat tttccagaag atgcgttggt gtgccatagg gttctaactt ccttgaaaat 420
aggtttttaa gtcaattgta aatatacgta ttattgttaa aaagtaactt taaactgcca 480
cacatagctt tcaaaca
<210> 106
<211> 440
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 71, 81, 88, 118, 126, 168, 203, 205-207, 211, 288, 408, 430
<223> a, t, c, g, or other
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aactanataa gaaatactga aactaacttt cctttaagaa atcttaanga ggcacacttt 180
ctagtggtga aacactcctc canannnaac ntagtaagaa ggtaagggta tgaacagcaa 240
agttgtgtaa cattttctta tttctataat tttacttatt ctggatantt ttagaaaata 300
aactcatgtt ttaactaaga ctgttaacca agtacaaaac tatttgttgt tgcatttgca 360
gatacagtat cctacaaata tgtgcagcaa gcccatgaag cacttccncc gtcgatactg 420
atatttcagn atttaatata
<210> 107
<211> 510
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2672695T6
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atgctattgc agtaacagta aaaatataca gttatattct accacaatac ccatttaaaa 120
gttagtttcc tacatgctgc ctttggccta aaaagttcaa aacgaattca aattaatttg 180
ttatttacga tttcactaat tcaagacttc atttaaaaat attgcttatt tagtgtaaaa 240
gtctgagata aactgtaaac atatttaata agttacatat ggttaacaat catatttggc 300
acctaaatat acatgtttaa ttcctaacac atcaagttta tcctgacaaa caaatttaca 360
aaaaaacagta ataaagcaaa tatctgagag ataatactgc atctttaaca gtaactgtgt 420
acttctgttt aaatgtagaa tgtatagaaa atctgttqtg aatgaaqtat gcacaqttta 480
tcaattttt aaaaaaccaa aaccaaaaac
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<210> 108

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PA-0020 US
<211> 575
<212> DNA
<213> Homo sapiens
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<221> unsure
<222> 67, 91, 102, 114, 120, 128, 148, 159, 175, 189, 195, 204, 206, 214, 231,
236, 251, 276, 359, 369, 390, 400, 414, 428, 433, 471, 477, 487, 501-502, 516,
536-538, 546, 553, 568
<223> a, t, c, g, or other
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gcagagnttc aggggagaat tgtgagaaga ncccatgagg antacagaca tttnatcttn 120
ggggaganat cttctggagc tgtgcttntc cttcatgcnt tctggtgttt gtttnctctc 180
caqqaaqana qctanatcca qqqnancccc agantgcatt gaaaggcatg nttcanacct 240
atgctaatga nggctgattt cgcagtggct tggcanagct gtagcacata ccatgttgga 300
ttgtaaactg acctggcact cactggcact tgggatatgt gtgttgaatg aatgtacana 360
gcagagaant acttagaaag tatggaaggn gccattcagn ttccagagac taanctccag 420
gtcatganct ctnatcacag aggtgtctaa accctcgcta gccatggtta nctcagngtc 480
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<210> 109
<211> 237
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2718743F6
<220>
<221> unsure
<222> 191, 213, 216, 232, 236
<223> a, t, c, g, or other
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ctgaacacag tgagggagaa aaatcettag agaaggtege ttaateteaa ttacccaaag 120
tcattgcttg gcagaatatc tgtggtctat tatccttagt gaagtgacag gcttggagaa 180
gcagggaaat ntggggacca tgtgtgctat atnaancaag gactggtcac cntccna
<210> 110
<211> 239
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<223> Incyte ID No: 2721122H1

<211> 452

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PA-0020 US
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ggtttcatac actctcaaag tggcggaggc ccgcttcgga ggtttctctg gcctgcttct 120
ccgctggagg ggaagcatct acaagctcct ctacaaggaa ttcctcctct ttggggcctt 180
gtacgctgtg cttagcatca cctaccggct gctgctgacc caggagcaga ggtacgtgt 239
<210> 111
<211> 474
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2735638T6
<220>
<221> unsure
<222> 457
<223> a, t, c, g, or other
<400> 111
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caaatttaaa tggcaacttc attgctgcca ctgaaccaat cctqaatttq qqctcaacaq 120
gtgaaaagta acaatatcaa acgaatacta aacagcataa caaaaagatt ticagactci 180
tggtcataaa gaccgtaatc gttcacattg aatcaatgac taaacatttt tgattaccca 240
gctacctcca agcaaactga aaactgtcta gtggatcctg aagtccatag tgcctctagc 300
cgggtctttc aagtgttgca ccacagggtg atgattgatg gtaaaaacag ggatcaaccc 360
ttgtagatcg gtggtaagta tggaaaccct ctaagaacag tgcagcgtat gtgggtattc 420
agactggttg catacagcat tcaaaaccag tgctggnata gcttgcccaa agtg
<210> 112
<211> 443
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2739124T6
<220>
<221> unsure
<222> 403, 437
<223> a, t, c, g, or other
<400> 112
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tgtctctttc agcagttctg accctaagat acatacttat atggaaaaag ctatggataa 120
aaataaataa aatacatctt aatcatcaat atatagacaa aattgaatag aaaaaagtaa 180
gaacattata aagcatgaaa atttacataa aattattcct gaatgtgagg gttgaaagac 240
tctagaggcc tgaaatctat ttgaaagaga aactttcaag aaaaggaaaa aagcattcct 300
ctacttagaa tagatatgct atgatctgat tctgaagcaa tgggattgaa ctgaatgata 360
tatgaggttc ttccatggcc cactgattta gatgatagca gtnaaaaata tattagtgaa 420
aatcatttaa tactggnaaa gaa
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<210> 113
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PA-0020 US
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
<222> 377
<223> a, t, c, g, or other
<400> 113
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aattggctat aagtcctttg actcataagg ccttcagcca tagggagtcc catggaagta 120
taggatggac ccgagatggg gagccatgcc accctagcaa cgctgtggga caaaattaaa 180
atttgctggt ttttgatgtt gcctctggca aatcttggcc agaaggggaa gaacgtaaat 240
gaaaatgaaa attcgaaggc cccccacaac tatctgaatg gacttcctct tcctccaggg 300
ttcaggccat gatggaaagt gggaggtggg acatgcttca ttatacctct ctggcattaa 360
cattcacagt ctattcnctc tgaagcttgc tacctggatg tttcatctgc atgataaaat 420
cccaggtctt cagacaaact caactaattg to
<210> 114
<211> 225
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2752482R6
<400> 114
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ctctttttca ttgccatctc tggggtggtt ctttggtttt ttgtgtgttt tccccttcat 180
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<210> 115
<211> 458
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2757678R6
<220>
<221> unsure
<222> 134, 427
<223> a, t, c, g, or other
<400> 115
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agetetggtt eteagtgtga tgeatecece aggttggtee tgagatgagg taaattetgg 120
tcatcactgt gaantqccct cgqqqqtctc cqqqtcctqa qtaqaaqcaa qqtctqtttq 180
tcactgtgga ttccccctg ccaagggtcc ccaggtcagt cctgaggaga aggcagctca 240
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gtctttactg tgatgcagcc tctagtgatc cccaggtcct gagtagaagg aaggcctggt 300
cetetgtgga tteaacecag aggtetgtga geagaatgea ggtaetgeaa geaggetaga 360
caaggtgtgt gcttgcaccc cttccttact acctaggcac agtgttggat ggtcagtgct 420
tcctgtntgt gatggccatg tgcccctct tgcaagtc
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<210> 116
<211> 461
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2765789T6
<220>
<221> unsure
<222> 5, 24, 55, 69, 81, 193, 195, 204, 216, 223, 233, 250, 262, 267, 294,
333, 345, 386, 395, 453
<223> a, t, c, g, or other
<400> 116
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aacactgtna acaactcaac nacttttgat taaaatatca cacacaaaga aacacaatag 120
gagttgaaaa aattataaat gctagaagaa aaattctaat aacatttggt ggttacttta 180
cacatttatt tancncatat aaanccaaat gggaanccat ttnccttttt ttncataaaa 240
acaaagtttn cactggttaa anctgancta aaatcatttt atgtatgagg agancaaatc 300
taaattactt ccattttgaa aaaacaaaca ccngcttatt cattnctatt cattcaagtc 360
ataggcccca ttatttggat gatacnctat ttagnctaga agccagaaaa ggaaacatct 420
ccatctaata aagaagtctg gacaatgcaa aangtaaaag t
<210> 117
<211> 509
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 2784742T6
<220>
<221> unsure
<222> 57-58, 82, 91, 103-104, 114, 132, 134, 149, 161, 173-175, 181, 207, 211,
242, 259, 263, 265, 274, 321, 327, 329, 349, 354, 358, 367, 377, 452, 469,
473, 495, 504
<223> a, t, c, g, or other
<400> 117
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agaccaacaa tactgctaag tnttaaaagc ngtgaagcaa agnnaacgca tcanatagta 120
caggggcatc tnanagagct tccactganc tccccaatgg nttctatgca atnnncctct 180
nttccataac tgtattaaca actaccngga naggaaagat gagattaaaa ataatgatac 240
tnaactgaat tgttttaanc cantncccca tatnttggga aaaattcatt tagttcaaca 300
gcaatacaac acaatgtgaa natattntnc ttagacacag atattccana attnaaanat 360
ttacaangca agtcaanata taaaaccata gtacactgtt aaataacctt taaacataca 420
tacattgcag ttttcaaata aagacattca tntcattgta caaggatang aanaaatcct 480
taaaattacc tactntagtt tatnatata
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PA-0020 US
<210> 118
<211> 510
<212> DNA
<213> Homo sapiens
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<221> misc_feature
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<220>
<221> unsure
<222> 485
<223> a, t, c, g, or other
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ttaattgaga gtcccatqta cgttctqcaq cctttttqct gcttctatca tctgaagttt 180
gtgtagtaca aataaggcct ttgggattct taatgacatt tatgttaaaa tgttctcttc 240
tetttaaaca eegtttteea ateeacetgt cagggagtee aaategtgte tgtgttgatg 300
atgctatact ttgtagctag aaaaacaatt ttagtgttgt gggctctgta ttcagacttc 360
ctttttacaa gaccgatggg cagtgataga ttattttatc atatttaatg catgggaaat 420
agtgtgctga ggaagctatt aaaagtataa ctcagtgaat tgggtctgag ttttaaatga 480
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<210> 119
<211> 552
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<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2790863T6
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tgacaaacat ttgtagcact ccctaaagaa ataggaaata aaaatgcatt tatccatatg 180
aacttgatta ttctgaatta ctgactataa aaaggctatt gtgaaagata tcacactttg 240
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aaattccaca cactatcaaa ctaaatcaag atttgctagt ggataaaatt accataaata 480
taccgtactc tctctgaaac agctacaaac atcttgtttt tgcaaaatat acaatggttc 540
tcaatctttc tq
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<210> 120
<211> 518
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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PA-0020 US
<221> unsure
<222> 422
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actocotttg ggcaggggt cotgacotca cacotcotco cagagggtoc otcacaaato 120
ccacgagggt gttggagaaa gcaggctggg gctctagcct tttgggcagg agtctcggac 180
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ggctggggca gagcctgtga gggccacagc agggtcagag ctgcctcctc agacctggcg 300
tcccagtggg aggaggtggc ttggggaggg gggtcaggag aagccaaccc gaagcaccgt 360
ctgggtgtgt gttccattgt gggtctctcc ggcattaggg gttagggctt gcataggaaa 420
antggctcag tgttcatgtg ttgggttctg ccagcaactg ggccactgcc agggaagccc 480
gactctgcat ccaggtgatg ccaacacatc ctctcgaa
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<211> 536
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2801448F6
<220>
<221> unsure
<222> 185
<223> a, t, c, g, or other
<400> 121
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ttttttaagt gacttcatgc agtttgttgc ttttaaaaaat ttgtccagaa tcgttttctg 120
cagaagcatg gtctgttagg agcttactgg ccgtagcaga agcaattgtt tcctgaattc 180
ttganattta tctttgctgt attcatttag ggcttgggag agtccgaaga taattcagtc 240
actgtcagat taataattct gtcaggacaa agaataccgt tatgattatt taatccttta 300
aaattgtggt ctccagagct tgttctcaga atggcccaga ccaagcctta attgtgatag 360
tgaatattaa tggtcacttt aaggagaaat tatagtccaa gatgaaatga acataaacct 420
gtttgccctg gctttcagtg gaagatgata ttagagacca aaatctggtt ctgaaggtgt 480
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<210> 122
<211> 463
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2827489F7
<220>
<221> unsure
<222> 419, 425
<223> a, t, c, g, or other
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ttttqtaqta taaqaqatta tcctqqcaat ataqttttaa tqccaatata ttqaaactta 180
catgacattt cagtggtttt gcagtgtttt cccaagtatg gtacctttac cactgaaggt 240
acacagtgat ttctgggtgt taaacagatg aacatttttt attttaatag ctatacaata 300
taaccagcaa ataaaatcca tgttttcatg gatattattg cttagagtta gttaagtttt 360
aaaatgtgat ttaaaggaaa atattaagta ctagtacaag agatacccag tatgacagna 420
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<210> 123
<211> 329
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
<222> 5-6, 15, 23, 27-28, 39, 74, 159, 198, 264, 266, 282, 319
<223> a, t, c, g, or other
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agcttgccta tggtgagaaa tgtgcatgct ccgtgagcng gtctcttgaa acaggactta 180
tgcttcctct atattctngt taaattttcc aaacacataa gttcactgag cacagatttc 240
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catgttccct tcctgactna aatccccaa
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<210> 124
<211> 410
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
<222> 77, 105, 116, 142, 149, 152-153, 158, 165, 178, 189, 192, 194, 197, 199,
208, 221, 256, 304, 311-313, 319, 338, 344, 383-384, 392, 400
<223> a, t, c, q, or other
<400> 124
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ccgacgggga atgctgntga caggcacttt ctgcggggtg ttctngggtt attggnggag 120
ctgtgcccaa ggtggtgatg ancggtgtng anntgaanac tggtngtgca aqcccagntg 180
aggctgcant gnanganang ttggcaantg ctgaaaacat ngcttttgac caggatgttc 240
attggccagg tatcantcgt tcctggattg cttgtcggtc tccaaggcca acaccaggac 300
aacnatttag nnncatgtnc ccagtcaatt cccttggngc cgangacatg cctataaatg 360
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<210> 125
<211> 250
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PA-0020 US
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2835032T6
<400> 125
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caccttcacc catgaagaat attttcactg gatataaaat tctgagttga caggtctttt 180
cttccaatgt gttaaaggca ccattccact aaattcttcc aaggattgtg atgagaagtg 240
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catgggtaca
<210> 126
<211> 368
<212> DNA
<213> Homo sapiens
<220>
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gtacctagca gcactggccc tcggacqgtc cctgacccca cctcggggcg ggcgcacatg 120
agctgcttcc cacccaggga aagctggggt gctggcccg gccctcgaa gagggcttag 180
gaggacggaa gctggccaga gatgaagggg ttttggcctg ggtgtgagtg acaaggaact 240
ggtgccagcc cctccctccc cggcactgag gcgtccgtgg gggctagatt attcctcctt 300
ttcttccaag ctgtcctgaa tccccacgaa ggccctggct cagctcttcc caccacaggc 360
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acaccagg
<210> 127
<211> 486
<212> DNA
<213> Homo sapiens
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<222> 179, 362, 411, 413, 428, 452
<223> a, t, c, g, or other
<400> 127
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ttctqcaaqt acaaaaatac acatttatta cataacatat qqtaqtaaaa tttqtcaaqa 120
tatattatac aaactcaaag cattttagat aaagcatcag tctaatatat tatagattna 180
tggaqtataa taaaatgaca tatagtctgt cttcaaatca tacaatataa tactttacag 240
caatattaac aaactattca cattaagaat tacaggagta tctaagggaa cacagatagt 300
aggaatggtt attaaaaaac ctcagcaact attttcttct atqcttcaaa ttqqqtqaat 360
gnttttttac ctgctaacat gaaaaaaaaa aaaaggcaat ttcttccaga nanacactcc 420
aagccgtnaa gagcttcatt cacatcttgc angtctgact gaccagtagt atgccctaag 480
ggaaag
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PA-0020 US
<210> 128
<211> 556
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<220>
<221> unsure
<222> 2
<223> a, t, c, g, or other
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cttcctaaga gacaaattgt cctagaagtg gggggtttct gagtaagaca ctggcatgcc 120
tggcaacatg caagaccttg tgcttcaata cttggaagaa gcacaaatta ctaagatata 180
attgctgctt ttgtattgct tataattcaa caggggaaat aaaagtaagt caaaggtaga 240
gcatgacaaa gacttctaga gaagtacagg tgataaccct gggagttccc aagaattcat 300
aggagetetg ggtgtgaatg aatgteetet egteatgtgt atgeettaca gattagagte 360
tgttgatgtt gggtctaaag ggtactaatg gagcaaggct gtcctcttac tgatagcagg 420
gcattatggc taatatttcg gaagtgaaat aaatccttct gtcaagaagg catagaaaac 480
aaagcagcaa qtccaaggta aggtttaaac ctcctagctc ttcttccctg gggcagaata 540
cccacagtca tagttg
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<210> 129
<211> 289
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
<222> 116, 120, 128, 164, 179
<223> a, t, c, g, or other
<400> 129
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caacatotoa gatootggca goaggaoggo goatgacact gagatgtaco cagggnatgn 120
ggcacaangg cccgtacggg aaaggacaga atagggcggg ggcnggctca ccataatcna 180
tacgcagtac atggcaaaga gaatccctga tggttatagt gtctccagag caaacacaga 240
tgatttcccc tcacqttggc gtctgctgta cctctcagac atctgtgta
<210> 130
<211> 505
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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PA-0020 US
<220>
<221> unsure
<222> 452, 501
<223> a, t, c, g, or other
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acttacagaa cggcaagaaa actgggttaa catataaatt tgtgtctgtt gaaaccagag 120
tacatgctag aaaacattaa cacagatacg acagagtgtg gttttttttt agaaatgggt 180
aatttototo tocagtatoo titoactigt atgagatatt totoototoo tgttitoaca 240
aaccaagaaa tooccaggta ggccaatcoc agaggtgcca tttaqcagta tgcaqcagcc 300
cagtttcagc ataacaaaac atgccttggt agtggctctc tcatgcaaat aaaagaaagc 360
ttaagaaatt cttgttgtag gtggattagg caaggctgcc attcagctgg tataagctaa 420
aagtaaaaaa tcaaaacgct caagaaaacg gncacaattt tggaatgtta aagatgtctt 480
tataaagttt ttttcaagac ntcat
<210> 131
<211> 380
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<400> 131
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agagttctaa taaaaatatg catattctca cagcatgtac tttatttaat atctgaaaaa 180
attgtgatag aaatgtgtat ttgttttaaa aacgtgtaac ttcttatatt tcaaagctaa 240
tacatgttca ttgagatatt tggagactat agagaaagat aaaagaaaat aaatcaccta 300
tattccacta tccaaagaca accactgtta gtattttggt atatttcctt ctagactctt 360
ttttatgtgg gtttgcactg
                                                                   380
<210> 132
<211> 392
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2965657T6
<220>
<221> unsure
<222> 7, 36, 70, 100, 127, 147, 160, 165, 177, 186, 192-193, 199, 220,
228-229, 235-236, 240, 258, 261, 267, 271, 273, 281, 283, 285, 289, 297, 300,
308, 312, 317, 322, 324, 342, 348, 361, 363, 376, 385, 391
<223> a, t, c, g, or other
<400> 132
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atgttatatn ctctttttaa gtgggtaaaa gtattttgtn tgcgtctaca taaatttcta 120
ttcatgngag aataacaaat attaaantac agtgatagtn tgcanttctt ctatagnatg 180
aacatngaca tnnccctgna gcttttagtt tacagggagn ttccatgnng ccacnnactn 240
aactaattat ccaacacntc ngttatntcc ngnctcaaat ngntncacnt tccaccnatn 300
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ncnaaatgcc aagtgngaaa ttgtnttttt nc
<210> 133
<211> 298
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2967286T6
<220>
<221> unsure
<222> 28, 35, 69, 94, 184, 201, 229, 239, 252, 260, 265, 284
<223> a, t, c, g, or other
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ttgaaccgng gacagcggca accacagcag cganacggac ctgtgctttc caccaagaac 120
agattccqca gcqggacaqc agtcactttg caqtqqtaqt aatttattcc ccacacaaaa 180
cacnocaget aaatgeeett naacceggte caaggaatte tggaagtgnt etaaaagtna 240
aaatccaata tnaaccatan atttngtggt ttcaatcaaa cagnactctt ctaaatca
<210> 134
<211> 473
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2994210T6
<220>
<221> unsure
<222> 66, 202, 286, 292, 359, 374, 381, 396, 435, 442-443
<223> a, t, c, g, or other
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tocagnaggg ctccagtcag acccagaatg acaccagcca cacttgtgac tggcagagat 120
aacctctttg atcttcagca attttaaaag ttcttcatcc taatttctga gtatcataaa 180
aagtaaaaag tactttcatt tnatttttcc tttqaaaatq tttttaqtqq caaacagqac 240
tacttqtttt ccttacttca tttttataag catagtagtt atatgncaat tnacttaaaa 300
ttaqaqaqqq aaaccccaqa qacctqaqtq qcactqccca tccactqaaq qcccacatna 360
ataqqtactc atgntcatgt natcacgtct acaaanagca ataaaatgat gtccgtaaat 420
cggaagtaca gcagnagcag tnnatacata tctgatatgc tttcacacca gga
<210> 135
<211> 435
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<213> Homo sapiens
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PA-0020 US
<220>
<221> unsure
<222> 378
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gcccggcacc gcccttgcct ggtttcaaaa gcagcctgcc cagcctccca ggctcctcgt 120
ctacqqtqca tccqttaqqq cccctqqcqt cccaqacaqa ttccqtqqca qtqqqtctqq 180
ggcagacttc actctcacta tcgacagact ggaccctgaa gattttgcga tgtatttttg 240
ttttcaatat qaqtctttac ctcacacctt tqqccaqqqq acaqqctqqa catcaaacqa 300
actgtggctg caccatctgt cttcatcttc ccgccatctg atgagcagtt gaaatctgga 360
actgectetg ttgtgtgnet getgaataac ttetateece agagagggee aaagtacagt 420
                                                                   435
ggaaggtgga taacg
<210> 136
<211> 580
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3000067T6
<220>
<221> unsure
<222> 217, 232, 287, 329, 344, 353, 366, 414, 443, 459, 466, 471, 479, 483,
485, 487, 495, 531, 535
<223> a, t, c, g, or other
<400> 136
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ttgttttgct tttcattcaa cgatatcaac ttgtaacttg tgtcacttga gttttaattc 120
agcagtaaat cacctccact ccatatctaa gcagcgttgt cccaaaaaca aaaggggctg 180
aggataattc agctaatgga tgtccaaggt tgtgctnggt ttatttcttc anttgattgg 240
qtcttatqqc atttcatatc ctctatcttc aaccaqaatt ttttttnttt ttacttaaaq 300
taaatgtggc tttgttagtt tctaaagant gtacttttct tgtnttactt ttntaaaaag 360
totttncatt toaaaaaaa agttttgcat ttgtctcaag agactcaaat aggnagatca 420
gttttcaagg cactcacatc aanttgaatg gcagtagana aactgnccta naaattatna 480
ttntntnttg tgctntatag gtgccaggta ttgtgaatgc cacgcttagc natantggac 540
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.<210> 137
<211> 378
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 80, 82, 130, 244, 263, 277, 291, 303, 318, 327, 343, 358, 372
<223> a, t, c, g, or other
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<220>

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tactcaagtn aagaacatgc ttacttgtta ctggttggtc ctgttgccaa gacatcggac 180
tgtaactttg gaaagaaccc ctgctcatat ttgccttgac caattttcat atcaagtaga 240
tgtnggtgga ttgcagtgtg atncattttc atcagtntct gctcaattga ntgggctgct 300
tentttaaag tgetgeantt etgatanata gatgteegea agngggtgee ettaegtnat 360
                                                                   378
acagccttat cntatcaa
<210> 138
<211> 354
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 49
<223> a, t, c, g, or other
<400> 138
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tagataaaat taactaacac cttgcattac agaattctca gtcatgcttt catggctcag 120
acctgaccag agactgtttc tgccaagttg agatctcccg cgagaaaaca tccaaaagtt 180
ttgtcattat ctacctattg ctcggaaatg gtttattctg cctgctaacc actcacaaac 240
tttgatatga taacaaagac taactgctgc ttacaaatgc tcgtttgata tttaacttgc 300
tattttctat tcagggcaaa ataactatct tgaaaatggt tgttaattct cagc
<210> 139
<211> 447
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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gcttttacca taaccgcccc agtactggaa cgaggagctg cagatgatga gggacctacc 180
caacaagaac caacctgagc agctgcttca agaaaaagcc atgttcaagg tgcctgaatc 240
ccctggtaag tgagtgacag cctcacagcc tcaggcccac ctggctcctg ctggaaggtt 300
ttcttqtqct cqqqaqaaa qtqaqqqaaq ccqqcaqtcc caqccctqtc aqqtqccctg 360
aaggcccgtc aggtttgccc tgcaaggcct tctagcattc tgcttcctgg gagaccatcc 420
cccacctttc tccggcctct gagactt
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<210> 140
<211> 195
<212> DNA
<213> Homo sapiens
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PA-0020 US
<221> misc feature
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<220>
<221> unsure
<222> 105, 110, 113, 119-120, 147
<223> a, t, c, g, or other
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ccctcqqtqc tccaqttccc caqctcactc aqccacatac accanqtqtn aanaqqaqnn 120
caccqcqctc gcqtqtqata aaqqqcnccq qqcccqtqqc aaqqcaqqqc ttcqcaqqaq 180
atgatqcccc ccggg
                                                                      195
<210> 141
<211> 495
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3211415T6
<400> 141
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catcactaga ttttagatgt cctcggtgtt actgacggtt tttctgtcca cctcgtcctg 120
cagtotetet teteeteaag titgaaatge tieateteat egggitiggge eagaaaaatt 180
tggtccataa aaggtgcata atttctttcc attcactaca tggctgcaaa gtcaatctgt 240
acgtagaget gteteactee ageetgagta aaaatattat gtgtttgget taaaateeac 300
ctagcatcag catcaggtgc tactattaat ttcaaggtcc caacataaac gtcagaacat 360
aaagtccaga agtgctgttc ctgtaaactg taaactcctt gcaactgctg taccctctga 420
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<210> 142
<211> 346
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3238201T6
<220>
<221> unsure
<222> 7, 20, 27, 34, 39, 61, 78, 82, 91, 98, 103, 109-110, 114, 138, 141, 149, 156-157, 165, 189, 233-234, 280-281, 285-286, 288, 291, 309, 319, 321-322,
<223> a, t, c, g, or other
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natttaagtc ataccaanta tngaatatga naaataantt canaagtgnn attnctttaa 120
aatacactac ttccactntt ntaagtatnt tacatnnatg tatanattct atagtggaag 180
cagacaatnc tototaaaaa cattatotoo ttaaaatott goaggtgoat atnngagooa 240
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caggicaatict ctgacatata aaattgcagt acaggicith naaanningc nittcactgg 300

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tacaatacna caaccaagnt nnataatnac tgtacagtgc ntagac
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<210> 143
<211> 471
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3254006R6
<220>
<221> unsure
<222> 396
<223> a, t, c, g, or other
<400> 143
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gaagcagctg cgtttcggtg gtagaagtgg gaggggaagg aagaggggtc tgcaagggtt 120
ctgtacatcc tgcactgaca gaactcaaca gcccagccct gcctggctgg ccctggacaa 180
gatagaccct gggcagcaac tgggagaagg gaagaggaga aggggagctc ctggggccag 240
aatcattcag cagaggctgt ggtttcagtg catacctttg tgtgaaagga gtgcaccaaa 300
tcattgagtt gggctgtaat tccaagggct ataattataa ttccaattct tttttgtttg 360
taatatttca aattettggt teetagatat tgatenagea aaaaatteet eeagatggea 420
atageetett tteteetgea geteteteee caacettage ettacaaagt a
                                                                   471
<210> 144
<211> 180
<212> DNA
<213> Homo sapiens
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<221> misc_feature
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<220>
<221> unsure
<222> 9, 19, 26, 28, 41, 61, 71, 73, 80-81, 87, 95, 152, 157, 167, 169,
171-174, 179
<223> a, t, c, g, or other
<400> 144
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ntacggtaac nangaatctn nggctancgg tgctnttaac ttctgaacca cgacttaagt 120
caagagggag acagggtccc agcttctcaa gnggcanatg tgcaacntna nnnnctacnc 180
<210> 145
<211> 185
<212> DNA
<213> Homo sapiens
<220>
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<400> 148

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PA-0020 US
<221> unsure
<222> 37, 44, 66, 69, 72, 90, 96, 102, 110, 120, 122, 129, 135-136, 142-143,
150, 162, 165, 168, 173-174
<223> a, t, c, g, or other
<400> 145
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gagcanaanc gnctacaagc attttgaaan attctntgcc tncggcagan tttcgtgtgn 120
gntcactgng gactnnatcc anntgccttn ctgcttttaa tnttnctnct gcnngacctc 180
cttct
<210> 146
<211> 466
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3365533T6
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cctggcagga tgcaaccatc tgaatgagtg gaagtataat gtttgcacca ggtattatat 120
taggageett gaacceagaa tatgtetgat taagtetttt ageceaataa tttgeeactg 180
ctgccaagtc tggtaatttt gaaggagaaa gttcaaccat aacggggtga tacagggcac 240
ccccqtactc aaaaaacttt caaaqtqctt tctaaacaaq tttctctttc tccttqaata 300
caacqtcaqt cacaactqat qqcaqtacaa tcqatccatc catacactqc tctaaqaaca 360
tottgatggt ataatatgct gtcattcatg ctctacctgc tactagttta atttggtcaa 420
qtaqctcttt ccctqqaqac tcaaatttct actaqactca aattct
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<210> 147
<211> 290
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3421032T6
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ccaqqqaqqc taqtqtqqqa aqqaaqqacc aqqaatccct qaaaqqacca qqaqqcaacq 180
qqacctqaqq qqqtqttqqq qaqqcaaqqa qqqqcqqaqa qcqaacaqqt ctaqaqqaqa 240
agggaaacca gggaagaggg gaaaggaggg cggcggcagc agccgggcgc
<210> 148
<211> 446
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3425501F6
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aqaaqaaqaa gaaaaaaaag aaaaaqaaat ctaagcaaca tgactattca gactatgaag 120
acagtteect egaatttttg gaaaggtget etteteeact aactegatet tetgggagtt 180
ctctqqcttc acgaagcatg tttacggaga aaactacaac ctatcagtac ccaagggcaa 240
ttctatccqt tgatcttagt qqtgaaaact tatcagatgt agacttccta gatgattctt 300
caacggagag tttgcttctg agtggggatg aatacaatca ggactttgat tcaaccaatt 360
ttgaggaatc tcaggatgag gatgatgctc ttaatgaaat tgtgcgatgt atttgtgaga 420
tggatgagga gaatggcttc atgatc
<210> 149
<211> 444
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3434684T6
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qtcccatcca tqaaqcactq qacacatqct qqqaaccatc tqtqcataaa tcagaaqagc 180
caacaaqagt qqqaacaqqa aaqqtctqca aatacqcata tqqacttqaa qatacaacac 240
cagctcaggt aatatacagc aggcggagga gaaatgaaac aggagaaaca ggacaaagga 300
gaattcatga catgatcaag aaaccccttc tcctaacccc ctatgtccta aaacccacaa 360
ccatacagaa agaaaaaatg gaaatgcaga caggttttta gttctatgct gtttaactgc 420
                                                                   444
tgtaagtgag agtagtacca tggt
<210> 150
<211> 411
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3471751T6
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actcaaaaca caaaaggcat ctcttttctc tctcttatgc accaagcaga gtatatagct 180
gatgtcttgt gagtgtggag aacagccagg gtactccaag acttgtcttc ctctttcttg 240
cettettee agtgtggeea aatgaactee etgttteetg teteaggtga ttteeatttg 300
accetgatgt tecettttta etatgtgett tatteegtge eecceagece aatgttteee 360
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75, 81, 83-85, 93, 100, 116, 118-119, 128-129, 132, 140, 148-150, 180, 208,
307
<223> a, t, c, g, or other
<400> 151
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tgacttenng anagtaatan cagetttnnn aacegeagge ategtggage etgeatgggn 180
acquatccaq qccacqqcct tcctttcnaq aaqctcccat tcacacttca agtccttacc 240
aatgctgtgc agccagatca cggccaggat ggtggcccag cctgaggaat ccacaagctc 300
ggcaggntgt gcagccatta tttcttccaa actcatacct aggatcttgg ctagatcttc 360
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<211> 430
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<221> misc feature
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<221> unsure
<222> 216-218, 220
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agetecetgg actecetgge gagtgegtge gatgaggaga ggeeegagea etttgggggt 180
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tgattacctc gccgttggtg atgttgatcg ccaaatagat gtccccgaag gagccagacc 300
cgatcttccg taccagttta tatttccctc cgacaatgaa ttcagccttg gagccgctgc 360
tactogocat cotgagagac gaagatggag gotggggoca agococggac acototggga 420
agaggacgga
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<211> 519
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
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tottaggagc atcatttta gttctgtggc ttcaactatg ctgggtgagt ggccaacaga 120
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aggagaaaag tgaccagcag caggtgaaac aaagtcctca atctttgata gtccagaaag 180
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accaacaatt ccctgggaaa ggccctgcat tattgatagc catacgtcca gatgtgagtg 300
aaaagaaaga aggaagattc acaatctcct tcaataaaag tgccaagcag ttctcattgc 360
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cqqqaqqaqq aaacaaactc acctttqqqa caqqcactca gctaaaagtq gaactcaata 480
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<210> 154
<211> 293
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3562407F6
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<221> unsure
<222> 59
<223> a, t, c, g, or other
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acttgcactc atatcatttc atatatgtgt aaatatatct gtaggataaa ttcctagaag 180
tggaagtcca aattatatat atattttaaa ttcttgtgga tatatcagtc catttacatt 240
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<210> 155
<211> 608
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
<222> 528
<223> a, t, c, g, or other
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ccccacgctg aaagagagtg atggagtgcc cagtgatgga aactggctca ctttttacct 120
caggaattaa gagacatttg aaagacaaaa gaatttcaaa gactactaag ttgaatgttt 180
ctcttgcttc aaaaataaaa acaaaaatac taaataattc ttctattttc aaaatatctt 240
taaagcacaa caacagggca ttagctcagg ctcttagtag agaaaaagag aattctcgaa 300
gaattacaac tgaaaagatg ctattgcaaa aagaagtaga gaaactgaat tttgagaaca 360
catttetteg ectaaageta aataaettga ataagaaget tatagacata gaagetetea 420
tgaacaataa cttgataact gcaattgaaa tgagcagtct ttctgagttc catcagagtt 480
cetttetact greagetage aagaagaaac gaattagtaa acagtgenag ttgatgegte 540
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PA-0020 US
<210> 156
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<221> unsure
<222> 360, 520
<223> a, t, c, g, or other
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gcattcatcc atttatgaac tttcttccag cccaggatcc ctgcagagaa ccagaggtta 120
caaatctgcc ctcctttctc ccctaaaagg tggctgaggg gaggagaggt gcatgtagct 180
ccagctatag caaatcagtg ccctgactca ctggggagac ccagggggtt gggatgttgc 240
tgacacetca tgggccacet catcagecca tetttgtage ttcaggttca getetgggtg 300
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gtctgcagag tagaaagagc tgtgggctgg gaatcagggg cctgagggag cccctgccac 420
tgcctgccca gaaccagtgc tcctcattct cctgctgaca gcatgcatgt gccttttggc 480
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<210> 157
<211> 303
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3738958T6
<220>
<221> unsure
<222> 249, 264, 268, 270, 281, 287
<223> a, t, c, g, or other
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cattcccatt aacttggcta cttgacagta actcaataca ttatttctt aaccagaata 120
caaaataaaa cccacagtca cacagaataa atgccctcaa agaaagcaac ttaaacttgt 180
actgaacact gaaaaggtaa atctgtataa aaggttataa ctgcatttac agtgcaaact 240
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<210> 158
<211> 338
<212> DNA
<213> Homo sapiens
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<221> misc feature
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PA-0020 US
<220>
<221> unsure
<222> 296
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agectgggac gagacagage tgacaggegg ageccaaagg tgtgeegage accagtgetg 180
ccaqqqqtqa qagtcacatg cagctgtggc tgccgtggac gcctgctttt ttgccctctg 240
cagtttgcct aaccectgca gtttgcaggc agecetgggc ctctggacag ageagnectg 300
gttccctgtc aaggtgattg atccggaaga atctggca
<210> 159
<211> 366
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 3817414T6
<220>
<221> unsure
<222> 265, 276, 331, 343, 355
<223> a, t, c, q, or other
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ccaagttctc attgtgtaag ccaaattcct gtaccacttt gtcaatggca atgccaactg 180
catttatctg ggagggtgtt ggtgggggta acgtagtggg caactcttcc tcttgcttct 240
ccttaatqtt tttcttqtqc ctctnttcct tqatanqctt atqqqcaaat gcaatqggat 300
tcaattaaaa catcacagag tctgcaggtg nactttgctg tanggtagtt tcgtngtcgc 360
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<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3875548T6
<220>
<221> unsure
<222> 2, 12
<223> a, t, c, g, or other
<400> 160
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agttaaaagg gaaaaacatt tttttctgaa tcatatcaca ttatatttag cttaaagatt 120
attaactttt tgaatatcaa aaattgaagc tgctgggaat cacatttatt tgtaggtccc 180
aaaataqccc tgagqtctga ataggaaaat atcttttata aactataaca aaactctcac 240
ctcaaaataa aacactatga aatttacaca gttatatctg tactcagtat ctttacaata 300
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agagagetta tactaagagg acctaacttg aaacctggca ccctgtgcag gaatctgttc 420
aatcettaga acqqtcataa aqtcatettt qttaaaaaca cagqteettg gacaeeecca 480
aat
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<212> DNA
<213> Homo sapiens
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<220>
<221> unsure
<222> 96-97, 99, 104, 106, 115-116, 121, 126, 144, 159, 164, 184, 188, 197,
204, 219, 223, 234, 244, 251, 284, 286, 334, 362, 365
<223> a, t, c, g, or other
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ccancaantg gggtatntgt ggtngtttgt tttttatang ggntaataat cccnggattc 240
taancatatg ntcagctatt ttaaagaggg gattaaatat tatnanagaa atagtaaaga 300
taagttatcc tcacttaggc aaaagcacca ggtnctttcc atatcaagtt tagcctaccc 360
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<211> 351
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 342907T6
<220>
<221> unsure
<222> 344
<223> a, t, c, g, or other
<400> 162
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aattttaaat tcaaatttat tttacttggg gataatcatc actgacactc actgagccat 240
tgctaggtca ttgtctatgg gcaggtccat gcataatgtt atttaatcct cactctggga 300
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<210> 163
<211> 474
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 462533R6
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taatcaaaaa taaagagatt tgaatgcaaa actttataca ttaatgtaca tttctaatga 180
tggtacaaat tgccacttta taataaaaaa gaaacaggtg ggaataataa tcaaagcacg 240
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tagttacaaa aagttatctt agaaatctat acttcccaat acagatttca tgttaagtca 360
tatcaaattg agaatttgtg gtgaaagaat aggaaaaggg atgctagatg ctgatctttc 420
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<210> 164
<211> 335
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 1554666T6
<220>
<221> unsure
<222> 296
<223> a, t, c, g, or other
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acgcgtccaa ggcggcccat ccagtcccgg ggcagaaact ggcagacccc cttatnttca 300
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<211> 518
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1872410F6
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<221> unsure
<222> 47, 235
<223> a, t, c, g, or other
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tgaaagcatg cgtgtgtcac agaccattca gaagggctat acagagcaaa ctctagctaa 120
aagcatgcat gtgtcccaga ccgaaaacca gagagagcaa actccagctg aaagcatgcg 180
tgtgtcacag accattcaga agggctatag agagagtact ctagctgaaa gcgtngcatg 240
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cgaaaaccag agagagcaaa ctctagctga aagcgtggcg tgtgtcacag accattcaga 420
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<211> 338
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1991934F6
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<221> unsure
<222> 71, 88, 109, 188, 268
<223> a, t, c, g, or other
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cttaggcaaa ttccttttca gttaatggga ccaaagagag atgtttttgc ctccccctaa 180
qctqqacnta qttqqcttaa aqtqqaagaa tcccgaggag gcggggacct ggtaaggccc 240
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<210> 167
<211> 533
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 2264271T6
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<221> unsure
<222> 484
<223> a, t, c, g, or other
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ccaaqtattc taacaqaaaa qgccaagaaa cagcatgcat gctgccactt ccctctcccg 180
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agaagcagca atgcaaagca gggaatgccc agggaatggg ccaggtggcc tgtgccgtct 360
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gcatcctggt tagcaacccc agttcctctt tcgtgcattg tggttccctg agaaaaacgt 480
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<212> DNA
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<220>
<221> misc feature
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aaaactcagg cctaggaata gcttggttca gaaatcacag agggacttag tattccatta 180
atacaaatgg aaacattaag ttcatcatca gatgataaaa ggaaaaaaaa aaacctgata 240
ctcatctcaa aagacgcaga aaagacattt gcataaatcc agtacctatt attatttcaa 300
atttaaaaac ttcttcttt ttaagagata gggtatcact atgttgccca ggctgatctt 360
quacticitized controlled to the controlled to the controlled to the controlled the controlled to the c
atgagccacc acacccatca taaattaaaa cttctgaaca atctagtaac aaatggaaat 480
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<210> 169
<211> 61
<212> DNA
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<221> unsure
<222> 20, 41, 47-48, 50, 55
<223> a, t, c, g, or other
<400> 169
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<210> 170
<211> 185
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 3092415T6
<220>
<221> unsure
<222> 22, 73, 135, 173
<223> a, t, c, g, or other
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<210> 171
 <211> 346
 <212> DNA
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PA-0020 US
<213> Homo sapiens
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<221> unsure
<222> 56, 58, 72, 79, 145, 177-178, 193, 212, 226, 229, 266, 271, 295, 309,
<223> a, t, c, g, or other
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caggcataca gcagggaact ctcanaccaa gggaggacgt aggaagggag tgggttnngg 180
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<222> 47, 250, 305, 319-321, 323, 325, 473
<223> a, t, c, g, or other
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cccgcctgag agacactagg ggaaatagct tttgtgggca agcagggtgg ccggtggtgc 180
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<210> 173
<211> 375
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<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1879094F6
<220>
<221> unsure
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PA-0020 US
<222> 237
<223> a, t, c, g, or other
<400> 173
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<212> DNA
<213> Homo sapiens
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<221> misc feature
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gcacatatat ctatggagac acagaacctg gcagccccta tacttgacta ataaaagcaa 360
attoctqqaa qaaqcagaqa aataggccac aagtgagact ggcagtgtca aaaaaggtct 420
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<210> 175
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ttggatattc agatattcca gagaacttgg ttgtttagtg ttttaaattc taagaatttt 180
teggecagaa aatgateetg cagageatee etteeceeca ceteaceact attteteaac 240
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tcct
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<213> Homo sapiens
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W Ku

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PA-0020 US
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<222> 5, 19, 66, 80, 83, 94, 109, 124, 127, 131-132, 135, 143, 159, 171, 180,
183, 196, 207, 230, 235, 249, 254, 260
<223> a, t, c, g, or other
<400> 176
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totganogoo ttoaaagaan conaggoagt catnogttot ggotottont gggogggtto 120
ttententea nnggneecte canactecag etettatgng catgtgeecg ngaategtgn 180
tengteetet ettgenacag gatteaneac ggggteatec actettgaan taatnagetg 240
ctcagtggna tctnggggtn gggttgggcc a
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<211> 269
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 199, 214
<223> a, t, c, q, or other
<400> 177
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attaaacact aatgtgaaga tactgttctt ttgtttttaa ttattcaata ccacactgag 180
cagattttga ttattttnc tttctgagaa aatnaagggc ttttaaaaatt atacttaata 240
tgagctgtac taactataaa tggtgaaac
                                                                   269
<210> 178
<211> 461
<212> DNA
<213> Homo sapiens
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<221> unsure
<222> 22, 49, 128, 130-131, 133, 415
<223> a, t, c, g, or other
<400> 178
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gagcaggngn ntncggggcc ccatccatga gctgggccac aaccaacagc ggcatggatg 180
ggagttcccc ccacacacta ctgaggccac ctgtaacctt tggtcagtct acgtgcatga 240
aacagtcctg gggatcccta gggctcaggc ccacgaggct ctgagccctc cagagcgaga 300
gaggagaatc aaggcccacc tgggaaaggg agcccccctg tgtgactgga atgtatggac 360
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agccctggaa acatatctac aggtactgag ccagaaattc tgggagaagg ggatnaccag 420

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accepttcag teatgtageg acctgggate ceagtagete t
                                                                     461
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 <211> 274
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  <222> 224
  <223> a, t, c, g, or other
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  atatagagtg tcctttctgg tcaacagtat tgcttcagga cagaagagca tttcacagat 120
  ctttcctgta acttctagaa aagtcatcca gccagattta ggctcaagct tctttacaaa 180
  gccattttcc tatgagagaa taaatttaat attttaaaaa tcantggaga ttaagtatgc 240
  tggaataaaa agcaaaaata ttttcattta aata
  <210> 180
  <211> 111
  <212> DNA
  <213> Homo sapiens
 <220>
  <221> misc feature
  <223> Incyte ID No: 1361439T6
  <220>
  <221> unsure
  <222> 92, 107
  <223> a, t, c, g, or other
  ccccggacag cccttttagc cataaggaag tagcggtcca cgggggggcc gagggccacg 60
  ttgatagcgc gcacqqtgtt gatgttgcgc anaccaacag catgggncgc g
  <210> 181
<211> 556
  <212> DNA
  <213> Homo sapiens
  <220>
  <221> misc feature
  <223> Incyte ID No: 1214059T6
  <220>
  <221> unsure
  <222> 309, 318-319, 359, 408, 554
  <223> a, t, c, g, or other
  <400> 181
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attttagaaa ataaaaggcc tgcgttatat actagaaaaa tttcttcatt atatqcaaaa 120
tatttatctc ctctagtaaa ggagattaaa gaacaactgc aagaggaagg aaggtcctga 180
aagtgtttca tttggtatct acctacccca accccaagac ataaagacag ataaaggcac 240
taagatgcta gtatgtggct agtcctttca ataacccagt cagtccatac agataaccca 300
tgggatatnt tttttgcnna tctctttgag ccatcgatgg tcattatttg gttagttcnc 360
ccaaggtaag gccataccag ctgttaaaat gatgtagaga ttaatcanca gggctgccac 420
ttgcgaatcc cctccaagga tgctgtgcaa agggtctcat tggtcctgat gagtaatctt 480
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taaaaataac aaangg
<210> 182
<211> 263
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 182609R6
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atacacacag ttgacacaga accetegttt tetgaacaaa agcatataaa ateetgttgc 120
caatccttgt atgtcagttt cccatgggtc ttgaatgcaa atacaaatat cgtaaactaa 180
atatttqtqt tttctttcct agactctcca gaaagagcaa cagtaatgga gtacatgagc 240
                                                                   263
actggaagtg acaattaagg aga
<210> 183
<211> 577
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 1930329T6
<220>
<221> unsure
<222> 2, 545
<223> a, t, c, g, or other
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cagaatcatt tacaaaaata aatatgaaaa aagcagcaac tctttagtga tcatggaatt 120
aatctgacag caattaaatg tgtttaagca tctggcatat ctcctcaatt gcaccaaaag 180
aatttggaag cacttggttt ggtctcaaag gcaaaaggaa aggacaagga agggccagg 240
cetecegeca ggeeceegec ecceteacat ttetgagtee geatacatee egttgattaa 300
gtagtccacc tgggtgtagt ccttcttctt gtagctctca taggcctgca gggcaaacaa 360
aaccaagact gtgatgaaaa gggtcacccc gagtaacagc accaccagaa ggagagtttt 420
gtctaccacg gcctgggtga ggggctcagt ggtgaccacc atgtactggc cttgggtgct 480
gggctggcac gagtccgtgg ctggcatctt agtgccccct gagctcctgg ggtgttggcc 540
                                                                   577
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<211> 408
<212> DNA
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<220>

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PA-0020 US
<213> Homo sapiens
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193, 209, 217, 221, 238, 292, 309-310, 318, 325-326, 348, 351
<223> a, t, c, g, or other
<400> 184
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gtacctccct tagtgaatcn acctctgcct acaacttttc aaccaggagc tcctcntggg 120
atcoctccaa enggangnee anecceagtg agggneeana tgeecetgan atcatnatat 180
atngnngnan conagocott atataattna gotgtonaco nagagggtat tacatoanat 240
accatctaac ggatctatgg tggtccacag tagttacgac gagattgaag gnggtggctt 300
attggcaann ccacagenta ctaannagaa teecaaaatg ageegeantg ntggatatte 360
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<210> 185
<211> 464
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
<222> 12, 208, 210, 214-215, 229, 237, 244, 248, 266, 273, 277, 281, 325, 340,
345, 373, 380, 383, 409, 425, 445
<223> a, t, c, g, or other
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gagtgcacaa agaaacgaac agctaattaa taagatgaag atgctcagga ttggactgga 120
ggagagtatg accgcaacac tcagatacat aaccacacct gtaaccacac ctgtttacaa 180
ccacaggtcc ttgctctcaa aataaatntn ttgnncattt acaacagant gaatgcntta 240
tgantgenag ettttettt attgenatte tanteantea nteaaacaga ceaaaaggte 300
atacttctaa aataagctac aagtnatctt tttctatgan aatgntgtga cttggtgcca 360
cagctaaact tintctaatn gengeateat cageceatgg cageaaagna atgitaatti 420
ctggnatccc atgggctctt accgnagcaa caacttcata aagc
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<211> 424
<212> DNA
<213> Homo sapiens
<220>
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<223> Incyte ID No: 1554387T6
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PA-0020 US
<221> unsure
<222> 224, 251-252, 328, 332
<223> a, t, c, g, or other
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tttacqatqa aacatgagac aaaagggata aagtgcctta caaatccaac accacaagga 120
ggagttagga cttaggaata gactgagtag actatgtgcc ttgctcagcc acaattcttg 180
cctgtaattc acacaaagaa cactgtcaca ccaattactg tgcnaatgca catgtacaaa 240
cagatgacac nnaggagctc tgttggagac actgtttctt cagccttgac atgtggcaaa 300
gccaaggtac teettgteat tgacaeengg antatggeea agagggaaag gaaeetetgg 360
gateteccag ggaatetgaa tetegaaace teeaggaage etettaggag ggetgtgtag 420
tgat
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<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 503030T6
<220>
<221> unsure
<222> 173
<223> a, t, c, g, or other
<400> 187
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cacaatgttg ggacccagtg gcccttctgt cttgttgctc tgccatacct gacatatgac 120
ctctqtccca tqqttaqaat qqcatcttca gctcctqcca tccaqtqact ggnqcatcaa 180
tatccagcaa attttttcc tgtcgaagaa ttgatgcacc ctctgtt
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<210> 188
<211> 454
<212> DNA
<213> Homo sapiens
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<221> misc_feature
<223> Incyte ID No: 2058709T6
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<221> unsure
<222> 418, 426
<223> a, t, c, g, or other
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aaacataaac acacgattca gaaaatttta gttttatgta catttccaag caacctcaac 120
atattatgtt agttttcaat attttacagg gtacagaaaa aaatagctca aagtcttctt 180
taaataagag cataaaatgt ttaaacatat aaacaatccg gtttgatgcg tgaaaactaa 240
tttcacagct tttaaattag qatataaaag tttcatacaa ttagttgttg tgtgtggata 300
tggtttgaat ttatattaca cactactgga ttacatccaa tagcatttac ctggcccgag 360
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caggtactct gtaaacaaaa caaagttata tcaccaagtg ccttccccga attcgctncc 420

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454
tcaaancaac cacacagttc tgaccagtct acag
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<211> 365
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3988515T6
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<221> unsure
<222> 276, 345
<223> a, t, c, q, or other
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agtcagagct ttacaacaag ctgtagtcag agaagtgtca ctttcccttc atcttggcac 120
tgcattccca ttccatctgt ctttccattc tttccacttc atgcccactt atcctccata 180
gatatccaat cttgttagtt tctagtttac ctttcttgga ctttttttca ttaatgagca 240
tatacatgta tattttctta ttcacatttt ccaacnaaaa gatcacatca cttagaaata 300
tgggagtett tecetateag ttegtaggaa gattteteaa ttetnttgae aggeatetae 360
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tccat
<210> 190
<211> 583
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 2888859T6
<220>
<221> unsure
<222> 253, 410, 492
<223> a, t, c, g, or other
<400> 190
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gtgtgaaacc tgggtgaaga gccagggttt ctctccccca cccgcctcag agtgcttgtc 120
ctggaatcag agtgtaaaac cccctcttga agcagacacc aaaactgaac ttccacccgg 180
teatqqqeee tqetetteet qetqteagee tagtecaaag agcaatgagg gaactgetta 240
ggaggggtct ganggtgatg agggcctggg ggccacacag gggtgggtgc tgtcaggtac 300
aagcccatcc ctgcctgcaa ataaccttgc acagggtcct tcctcattct ttcctcttcc 360
tttttgttta tgagatgaat ggctcttctg ctgtggcttt aggggcagtn gggaggcagg 420
gagctatttg ggaacagcct ggaaagctga ccctgcagaa tctcccagaa gccttggtgt 480
ggctatgggt anccaggctg tagaaatccc agatggtcct cttccagacc tctccccaac 540
                                                                   583
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<210> 191
<211> 303
<212> DNA
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PA-0020 US
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<221> unsure -
<222> 277
<223> a, t, c, g, or other
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cagaageete egggtggteg egaggatget etaaateeeg ggggetaagg eegageeegg 240
cgtcccgcgc ccagcccgcg ggagctcttg gggatcngag cgcggccgac cttcgccagc 300
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ctc
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<211> 345
<212> DNA
<213> Homo sapiens
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<221> unsure
<222> 184, 260, 327
<223> a, t, c, g, or other
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tgangcagaa ccgtgagatc ggccccaacg atggcttcct ggcccagctc tgccagctca 240
atgacagact agccaaggan gggaagttga aaccctaggg cacccccacc ggcttctgtt 300
                                                                   345
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<211> 442
<212> DNA
<213> Homo sapiens
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<221> misc_feature
<223> Incyte ID No: 1440669F6
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<221> unsure
<222> 382
<223> a, t, c, g, or other
<400> 193
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actgccataa ggaagcgact gcacaggtta gctgctttcc tagatccaga aactcggagc 180
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<211> 467
<212> DNA
<213> Homo sapiens
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<223> Incyte ID No: 2995031F6
<220>
<221> unsure
<222> 89, 189, 206, 252, 272, 397, 411, 429
<223> a, t, c, g, or other
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aaatttgana cttgtgccac tattgntagt aagcagcatg gatgaggatg tggttctcta 240
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atgtgagatg tgtcaatact ggtcttgcgt tatttcggct acttgaaaat aagttaaaaa 360
aqataqtqtt tqqttccaaa aaggaaaagt ccaqccnctc ctgcatgagt ngggagctgc 420
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<211> 535
<212> DNA
<213> Homo sapiens
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atcatgtttg tttatatatg ctaaactgta aaaacaaaca cttcatgcga caatcattct 180
taggtcaaac acaagaacga actattttga aatcaattcc tcacactttt tccctgaata 240
tgcagtactg tactactaac atctaattct gtagaaaata atgcatttgt tagtgacttt 300
gttagagett gaaaagacce ttttagaaat tatttaaatg atcactettt aaaaattttt 360
tttaatctca qaatctacta atgtgacaga caaacggtat gcttaacaga gtcataaata 420
ctqtqtataa ttqcttqacc atttctqqqc atttaaatqa cctcccaqaa tattacacaa 480
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<211> 370
<212> DNA
<213> Homo sapiens
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PA-0020 US
<220>
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<223> Incyte ID No: 2808826T6
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qqttttattc caattqattc aacqtqqcaq attaaatqtq aaaaqtaaaa tqqtqqqctc 180
ctttaggcag caagtettge tteteteetg gttacetetg cetacataga tatttggtta 240
agcaagatgt ttataccccc acacgtattc tagatagttc tggtcatgaa gtaagtcaca 300
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<212> DNA
<213> Homo sapiens
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<221> unsure
<222> 4, 26, 31, 66-67, 71, 89, 97, 103, 112, 114, 116, 124, 126, 130-131,
<223> a, t, c, g, or other
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aaaatnnggc nttcaatatt tgaaaaaant acagatntac aanatgtgta tntncngtca 120
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<210> 198
<211> 504
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3175296T6
<220>
<221> unsure
<222> 27, 477
<223> a, t, c, g, or other
<400> 198
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aagttttgag gtttgagaaa aaagaagtct gaaagtctaa cctctttttg aaatgtgcct 120
gtgatgaaga gtgacaatcg gcaaagcaaa tctaatagga tctctaaaaga gccttttcct 180
gttgtttaca attgtggcta aagccctgca ctagaaaaca acaaatgcta agatcctccc 240
tgcatcccct accccgacc ccctggggca cacacaaccc tcctccacca cgttctaaaa 300
agactggaag gacttggaaa aacattccta tgggatgaac tagaaggtgg caggactgct 360
atcatcagae etcatttace cacceettee agetgaaaae cagggattte acaaaggaaa 420
aatcatgaga qtcatagttc tqtqqttttc tcaaaaagga gaaggaaggg acgcttnttt 480
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504
ccttcccacc cctgaggaac aggc
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<211> 481
<212> DNA
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<221> misc feature
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acqtgctctc cttccagctg tgcaacaaga gcaggagttc tatgagcaga aaatcaaaga 180
gatggcagag catgaagact ttttgcttgc cctacagatg aatgaagaac agtatcaaaa 240
ggatggccag ctgattgagt gtcgctgctg ctatggggaa tttccattcg aggagctgac 300
gcagtgcgca gatgctcact tgttctgcaa agagtgtctc atcagatatg cccaagaggc 360
agtetttgga tetggaaagt tggageteag etgeatggaa ggeagetgea egtgttegtt 420
cccaaccagt gagctggaga aggtgctccc ccagaaccat cctgtataag tactatgagc 480
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<210> 200
<211> 375
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 2203194T6
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<221> unsure
<222> 58, 69, 185, 198, 288, 330, 337, 361, 367
<223> a, t, c, g, or other
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caggacaagg gctcaggagt gtgcccagtc cccaccactc ccatcgtctc acagtgggct 180
gcctnattcg cttgtgtnac ccgctaacct tgcttaaatc tcagctctgt ctctaataag 240
ctgtgggacc agetetggtt tteeetetet etgaatgaga tgtgaatnac agegggtaga 300
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ngctgtntga cctta
<210> 201
<211> 596
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
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PA-0020 US
<222> 577
<223> a, t, c, g, or other
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ttaaaatgtg caaatacact ttgcaacctc caccattcaa tttagggatt gatatgtatg 120
tacagtgaga tccatgtagg ctaaagtgag tttcactttg tagttgatgc tacttgtacc 180
agttctatca ttagtaagtc accgtttaat tctgccaaaa tcagacaagg atctttctgg 240
ttagtgcaaa caaggttttc catcctgggc tgcagtctga cccgccagtg ctcagtaggc 300
atgettgtga tgaattegea eacttteeag tteeceaect eeaatggegg eeagggtete 360
caqcctgttt aagcgctcca agcttcttcc aagaacttct tctagccgac tgcgtaacac 420
ctgagcccct tccagttcca cctgcagagt tcggtctctc tcagagctct ctggatgggc 480
atggaacttc accagactgc tatagagctg tctctctgct tgtaaggcct cattgagccg 540
actocqttca totactagtc ottotagcat cagcagnaac tgttggcctt cgggtt
<210> 202
<211> 534
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2370457T6
<400> 202
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gcaattttta tttggggtgt gtgtgtttta ctcaataaat atttattact tttgtattca 120
gaaaaaacat taagagaatc ataggaaagt ttaactaaaa aagaaaatct ttaaaaatatc 180
attaaattat ttaacatatc cttcaagtga gattgtttcc ttttgctaag ctatattttg 240
taatctccac aacaaacatg aaatagtaaa gttgacataa aaaaacttgc acagtaatag 300
gaagcagtgt ttacattttg ccacccctta cattttgaag agggaactca tattcttaac 360
caaqactqtt tcttatcatt attcaaaggt acctactttt cctaaatatt gcaattaaat 420
tatttqtact taaqaaaqca qtqtattqta aaggaaccag ccagacctgg ggtaaattcc 480
taattttgcc attaactttg acataaccac ctaacccaat ccaaaaacga aagt
<210> 203
<211> 496
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2379695T6
<400> 203
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attccctgag gtggctcagg caggtaagaa acccacacag tcctgggtcc tccccaagcc 120
teggacgtge agetgetget teaetggaat tettetetee teetggaaac ttgeteeagt 180
tgtgtcactg gaggaggaaa aggtgtgggg gagggggaag agggggctgg agctggcctc 240
ccccgaggcc tggctccaga actcgggctg tgtggggcgg ctgaggactg tgctctgtct 300
agagcttttg caggcaagga gtcgggatgc agcaaggact gagggctatc tgccgtgact 360
cttcaaagag gggcctgcca cacccaccaa gtcccatcct ggagtctaca agccaaggag 420
ctgcgacctc accgagggcg cctgttatta aatagcccat tggctgcgcg cggtggctca 480
                                                                   496
tgctgcaatc cagcac
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PA-0020 US
<211> 453
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2503204T6
<220>
<221> unsure
<222> 394, 419, 441
<223> a, t, c, g, or other
<400> 204
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teagttgeac tggtateace atetgacata tttteeettt teeggegttg tagtageact 120
gccctctctt tatccaaatt cctaggctga caacgttcac atagatatgt atcaggaata 180
tgctgcctat caatccccat gcagtcaata tgttgccaaa cgctgcattt gtcacaacag 240
atcatgtatc catcatcatg tgtaaaacca catatgcacc tggttacatc agtaccataa 300
cttccatcct cagatqtqct gattqtagta gcactggaag tttcatcaaa attaggagtg 360
qtaaatatqc ctacttcatt tttqctaata aggnctgatg gaggagggga agcccggang 420
tgtcggagga gggacgagca ncattaatta tgg
                                                                   453
<210> 205
<211> 240
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 1849962H1
<400> 205
cgqttctttc cctgggttct tgagagagag aaagtcagtg tcttttgata caagttagag 60
cagagaggag ctgcatgaag acttgaaaaa gcaacactga taggcataag gaggctgaaa 120
qqaqacttqa qtaaattaaa tttattqcat ctccatatcc tqcaqatcta tccaataaag 180
gagagaaaca accgcacacg cctggctctc atcatatgca atacagagtt tgaccatctg 240
<210> 206
<211> 396
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2078863F6
<220>
<221> unsure
<222> 327, 340, 381, 384
<223> a, t, c, g, or other
<400> 206
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atttctcaca actgggctga gcacaactga accatggggg aacacagtcc agacaacaac 120
atcatctact ttgaggcaga ggaagatgag ctgacccccg atgataaaat gctcaggttt 180
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gtggataaaa acggactggt gccttcctca tctggaactg tttatgatag gaccactgtt 240
cttattgagc aggaccctgg cactttggag gatgaagatg acgacggaca gtgcgggaga 300
acacttgcct tttctagtag gggggtnaag aaggctttcn acctggatag atcatgaagc 360
aatgtcccca gggttatgtg nagnacattt atctca
<210> 207
<211> 277
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3218325H1
<220>
<221> unsure
<222> 18, 97, 107, 130
<223> a, t, c, g, or other
<400> 207
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catttettqa cetqtteete etqtteaaqq ettecentte tggattngae caacaagttg 120
aaggatgacn ggggttttgg tgatgcccat gtgtaaagat cctctctggg gtttattaca 180
caggettqta cagegagate ttttcatcat cetgetgaeg attgaeaggt acetggeeat 240
cgtccacgcc gtgtttgcct tgcgggcacg gaccgtc
<210> 208
<211> 443
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2927175T6
<220>
<221> unsure
<222> 23, 29, 32, 62, 75, 97, 107, 110, 166, 210, 227, 230-231, 237-238, 243,
245-248, 251-253, 257, 260-262, 276-277, 283, 311, 317, 359, 434
<223> a, t, c, g, or other
<400> 208
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anaaaggttt aatanttagt acaatgcaaa aactganttt aaatacncan atgcacttga 120
caacatacaa ggtcacaatt atttcagttg gtaggatagc tctggntaaa ttcaatggtc 180
attttttgct acaaaatata atttaaaatn aagatcacag agattangan ntaactnntg 240
canconnnac nongetotan notattttgc agaganotet gancaettta ggaaaccaga 300
atgaggaaag nggacangag agatcatgtg actgcttcac cctgatcaac ctggggcana 360
agcaccecge gtecetecca eegeetgeea etggteagee etatgateea cateaaccat 420
gtcctttgtc ctanaaactc cca
<210> 209
<211> 532
<212> DNA
<213> Homo sapiens
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PA-0020 US
 <220>
 <221> misc feature
 <223> Incyte ID No: 1997874T6
 <220>
 <221> unsure
 <222> 335, 354, 407
 <223> a, t, c, g, or other
 <400> 209
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 caggactgcc taactgacag tgagtgttgc tagccaggct ccaagctaat ggagctaata 120
 cggtggagct ctctgctgaa tggactttcc cttcaggata cgtcggatct gttctcccac 180
 agggccatcg ggaaccaaat gcactggctg ttcgttctcc aagttccgag tacttgggtc 240
 tgctcccttc ctcatcaaca ggcggacagc atctaattgt gtcaaccgat actgcaggct 300
 gcagcaaca tggaggcag tgttgccatt gtaanccttt gcattcacaa aagncaggca 360
 actgggcagc tccaaaaaga ggcgaatgag ttccagattt gcttctncag ctgccaaatg 420
 cagggtgtgc ggccactttt gcgatccttc gcttccaccg ctgtcccatt tgaattaggc 480
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 <210> 210
 <211> 538
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc feature
 <223> Incyte ID No: 2660871T6
 <400> 210
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 cattcatttc atttacctta cattttatct tactcatttt taaagccttc aacatttttt 180
 gagttttgaa ataattctca atttcttagt ctcttaattc ttaaatttaa aaaggttgtt 240
 tcttaccttt taaaattttt aaaaataatt atgtcaagta atttttgaat atagtaacct 300
 gattctacat ttctcatggg ataaattcta aggtaaaaaa aattgcaaat aaatcttaaa 360
 ctttatttag taggtttatt attagcagca gatgtctagc cagggtagat tacttttatc 420
 agaccaacct ctcaccaaca actactagaa gagctagaga gggagaaaag tctatttgaa 480
 gacatcaagg atttgatgag ctaagattgc agagagaagg gaagtatggt gaaacagt
  <210> 211
 <211> 54
  <212> DNA
<213> Homo sapiens
  <220>
  <221> misc feature
  <223> Incyte ID No: 2907049T6
  <220>
  <221> unsure
  <222> 20, 34-36, 53
  <223> a, t, c, g, or other
  <400> 211
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<400> 214

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PA-0020 US
<210> 212
<211> 521
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3149004R6
<220>
<221> unsure
<222> 499
<223> a, t, c, g, or other
<400> 212
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acaccgggct tacaggctaa ggggtataag taggtctgca ggggttttgt gtgtgtgtgc 120
gggggtgtcg ggggggcaag gccatttgtg gagacttttc ctcccagtat ggccacatcc 180
tgcagtttgt cagtttttgc ccccgcctgg ctcagggtac caggatgtgg tttagcttag 240
gggtggttat agtggcacct aagttctggg aacttgcggt gggggcgacc ttttggacga 300
aaaataagct gcagggcagc taggggaggg ggcttgttat attcctctgg gggcagggtg 360
tecetaactg ggeteagteg gaaggaactt gaccaaagte tgggeteagt tgggeateae 420
tgaggctaat ggtcgtgtgc tggatgccat cagagggaag taccaatggt aaagtggaaa 480
caatgtgcag ctttcaacng ggtggaggct gctattctgt g
<210> 213
<211> 246
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3269702H1
<400> 213
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tcttggcttt agagggtctc cttgcttaat gggaagcgtg cagcacctag tgagtggatt 120
tgaagagcca ctttgtaagc aacttgggca tttatttcag ccccagttcc agtcttccct 180
gactettttg geateaagge atecteagaa getteaacte tggaggeaat gggtegaaag 240
gaagaa
<210> 214
<211> 264
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1929661T6
<220>
<221> unsure
<222> 189, 196, 201, 206, 213
<223> a, t, c, g, or other
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gtgtgtctca ggtgtccctg cctccaccac cccctaagtg cacttgagac aggaccagtg 120
gtggtggttc cagcccaggg tcctgaaggg tcccactggc tctagaggag agccatgggg 180
acageteene aggetngaac ntetantete canetaceca ggagggaeee teteeteeta 240
gggggcgagg ccagcttcca aagt
<210> 215
<211> 300
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2709044T6
<220>
<221> unsure
<222> 16, 30, 58, 96, 105, 203, 211, 217-218, 249, 256, 296
<223> a, t, c, g, or other
<400> 215
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gcaaaaatta tatttgaaga gatactcctt tgaatgacat gggttgcaag ttctctgtca 180
aataatqccc tactatcctg qtnatatgag nacacgnntt aagttgttta aaaggtcaaa 240
aaacatggna aaaccntaag atgtctaaga tactcaactt ttactctcaa caaggncact 300
<210> 216
<211> 534
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 3254777T6
<220>
<221> unsure
<222> 499
<223> a, t, c, g, or other
<400> 216
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ggtcatgatt tctaaaaaat ccagccacgc aataacagcc tttctaaagc tgactttgtt 120
ttagtgaaac aaaactgtga tgacatccct aagcttcctc cagaagagct tcgacgtgga 180
gaaacggggt ggacgctcca cctaaccgca ccattgggaa aagaggaggc acctggagca 240
gaagettete teecaagtge acaacagage atcagegaag geagtgagaa gagtageaag 300
aaaaaaggttt aaaatcatcg atgaaaatgg aaattaagct tgtcttatta caattaagac 360
aaactgacca tgtgcatttt ccccacattc ctgtggggaa tcccagctcg tttgaacaca 420
cgccacgaac tcctggtatc cgtaagtatc ccagctcgtt tgaacacacg ccacqaactc 480
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<210> 217
<211> 531
<212> DNA
<213> Homo sapiens
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PA-0020 US
<220>
<221> misc feature
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cgccctcccc ccaaaaagtc aaaagacttc agttatcctg gaaagaaagt tctagctttg 180
gagggaagac cccccaagc cettcatete tgaagggcag gateatagaa gacagtetag 240
aaggcccata gcatagccct gacagtcaca gctgacttat cacgaagggc cattcaatca 300
acetecteaa tgatggggee ggtgetgggg teeceetggt gggettgage getacaactg 360
ctgccccag ggacaccagg cccccatag agcctggaga agatggggcg acagatttqc 420
tccaqctcct cttctgatgt catactcctc ttctctgcca gctggttgtg tccagccagg 480
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<210> 218
<211> 441
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3325383T6
<220>
<221> unsure
<222> 360
<223> a, t, c, g, or other
<400> 218
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tgttactttt taaatgtgtt tttgttactt ttaaaatgaa atgaaaaaga catataaatt 180
atagcataca tgtctacccc tacatttaaa acaatatatt cctatgataa ggcagaaaaa 240
ttaacctacc cttccctaac acaaacttcc ctttaatgcc tgtggccatc tgtagatcct 300
gtcctctgtt agcaaactcc actcatttgc tttttgaagt tgagttcaag atcctcccan 360
ctcctcacct gccccgtcac ccacatctct gcattactgt aggctcactg catgtgccct 420
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<210> 219
<211> 540
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3220151T6
<220>
<221> unsure
<222> 505
<223> a, t, c, g, or other
<400> 219
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aattcccacc tccacctccc attaagcaac atgatgaggt taaacagaat aaaactctga 120
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tgtactctaa gccattttga gagaaatctc tttgtgtatc ccaataaaag gacactccaa 180
attattttta tcatgtaatg ccacgataaa aggagcaagc tgcaaaatct ttaagaggca 240
actccattgc aaaaacaaaa acaaaaactt gggatctttt gtccaggggt gtcactctag 300
catctgcctg agtgacagca gcttcatcac tcagtctagc tgccgtctgc cctgtggatg 360
agcaagagee teaaatgeta ttataaetet aattgettte ggttatggtt gaacteaett 420
gaagaaagag tgataaaaaa cttcagtttc tccattatct gtatattcca tcacttaatt 480
gcaaaaatta atgatttgcc aatgnctaat cattaggggt caaccaatcc ggacgcgtgg 540
<210> 220
<211> 386
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3809026T6
<400> 220
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ttaaggaata gcactaatat gagcaccaaa ttaaaacaaa caaacaagca aacaaaacac 120
aagcatttac cagaatggac ttttgttttg tgcttcttta aatttttaat atctgtgtaa 180
gaatttccac ataattcgca gataaatggt ctttctcctg aaaaacaaat tagaagttta 240
aatttcaata ttttaaaagc tgctagctaa gacaaaaata tcaatgttta tgaacacaag 300
gcaaaaatta ttatagtgtt taaatttggt ttcaaattgt cactttaatc acctggttat 360
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<210> 221
<211> 175
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 065498H1
<220>
<221> unsure
<222> 122, 139
<223> a, t, c, g, or other
<400> 221
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cttaggageg eetgeeteaa tteetegtea aetgetttge teeacteeat eecacaggtg 120
tnagtggggg aagtttttna ttaggaatac agtctgcgtg acatggagaa tggat
<210> 222
<211> 360
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
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PA-0020 US
<222> 79, 185
<223> a, t, c, g, or other
<400> 222
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cgagctcagg agaccgggng gatggggggg cttgccagag ggcacagcat tgcaagcagg 120
gcaatgaccc agttctaaga cagactcgtc acatggcaag cagagtcggt cagactttgg 180
acaantttat tgacttcttt ggaacctcag ttttctcatt tgacaaaact agatggtcaa 240
gaagcgtcta ggattattgg gacacgtaaa ttacataatt ctgacacagc cccccaact 300
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<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 3
<223> a, t, c, g, or other
<400> 223
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aggcagtgac aggtggcagg caggggctac gtgggtcacc ccacagggca cagcacacag 240
tgaagagaaa ggagagagtg ggacctagga agaaactggg gaggaagcaa aacacaagtt 300
ccaggggccg gccatctaac cagatccacc acacaaatgg cagccagatg ccagaggggg 360
agaggcacat cacgcacaat tctcaggaaa cagaaactgc cttacacacc tcaaacactg 420
caatttgaca tcaaaaagta tcttgc
<210> 224
<211> 79
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1552980T6
<220>
<221> unsure
<222> 27, 55, 62, 69
<223> a, t, c, g, or other
<400> 224
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antgccatng gaaaggtac
<210> 225
<211> 465
<212> DNA
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PA-0020 US
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2507526T6
<220>
<221> unsure
<222> 76-77, 235, 262, 286, 288, 291-293, 403, 407, 433, 439, 441, 453
<223> a, t, c, g, or other
<400> 225
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ttaagtcaaa atcttcgtcc gctttttcag ccttccttcc tgcagaccta cacaaaccca 180
ggcaagatta gtcaacaggg gttcagatcg ggaagaaaaa ggttttgaat gtcangacag 240
gtttccccca aaaccctggt cnggcaacaa ctcttccaag gggccncngt nnnccccgcg 300
ggggcgggta caggtggaga ggtgccaccg ggaagaggg aggaggaata agtgtggcgg 360
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<400> 226
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aaccaagaat ctagttgagt ccacagccac
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<210> 227
<211> 359
<212> DNA
<213> Homo sapiens
<220>
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<222> 32, 88, 200, 208, 223, 233, 266, 280, 285, 314, 345
<223> a, t, c, g, or other
<400> 227
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attettggge agaceceagn tteagtangg tactggtgtg etnaceaagt canegtteag 240
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PA-0020 US
<210> 228
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<213> Homo sapiens
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<222> 48, 286, 290, 294, 335, 357, 424, 433
<223> a, t, c, g, or other
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ttcagcatgt aggtagctac actgtaatcc tgttgaagaa actttcctat ttaagcttat 180
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tgattcaaaa aaaggtatac ttaatgttag tcganaccat aattctctat ttttttntac 360
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<223> a, t, c, g, or other
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<211> 461
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<213> Homo sapiens
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PA-0020 US

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<221> misc feature
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ttgaagetga catcaageac aggtgeactg tggeeetgea gettgttgae ageageettg 180
geogeocget ccacateaaa gaagtgcaeg cacatgteet cactgeocgt caccacgeag 240
gccccctggc ggaaggacat gaggggacag aagatgctgc gcacaggatg tqaqctctqc 300
tcgatgggga agcttctctt cagctgcagg gtcccctcgt tgtctaccac cctgtagagc 360
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<211> 86
<212> DNA
<213> Homo sapiens
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<221> unsure
<222> 28, 31, 37, 43, 74, 78-80, 84
<223> a, t, c, g, or other
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ccagaacgca ctantccnnn cacnta
<210> 232
<211> 574
<212> DNA
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<221> misc feature
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aaaattggac aaattgacaa ataacaatgg gtcaggaaca ctgtatctgt ttgatacagg 180
agtgatattg aaaaagggtt ctgtttttac tttctcttat ttgtcatcaa aaaagaaaat 240
tgcatcttcc ataaacagat tccagaaaaa gaaatttatt gttacctctg cgaagttgtg 300
gatagettet ggtggtaagg atggtattga acaegtttae gtetgteece ttteteettt 360
ctcctgcttc atacaaggcc tgtcaagaaa cacaaaagta aacacttcac tatctgctga 420
aatgatatct gcacaataat gttagacctt gtcaaagatt atataggcaa tcgctttgtg 480
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<210> 233
<211> 552
<212> DNA
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PA-0020 US
<213> Homo sapiens
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<221> unsure
<222> 416, 468, 480, 526
<223> a, t, c, g, or other
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gaatgagtgg caaaatgtaa tgaaaacttt acatgaatgc ttatttaggt tgttcaaagt 180
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tcaattgagg ggaaagtgca gtaccgtcat cttcaagcct tgtaagcata aaagagaata 300
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tagggctctt cactcatgaa gcagactcct agtcctggag tgactgtnta cgagagcgtn 480
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<221> unsure
<222> 567
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<400> 234
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tcacaatgcg tgggaaaggg agagagaagg ctcactagcc acagaaaaac aggcagttaa 300
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acaatgataa gaataaataa ttgtgtggca gtttatgtag tgcattgtac atcagtggtt 480
tcattccatc tttataacaa cctcactact atccccattt tcacagatga gagaagactc 540
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<212> DNA
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<221> misc feature
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PA-0020 US
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<222> 497
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agtcttcagg tattgtaaga aaaacctggt acaggaaaag actaaaatta gacacatcca 240
tatccttaga tgtgcacatc atctagaaat aaatcccaca atgtagcagt gcactaagta 300
teetttgttt ggeaettaac aatacagaca aacgtgtatt tggtttaacg tgattttatt 360
attottagat acattttagt tattttatat agataaaaat atacaatatt gottttcaaa 420
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<211> 435
<212> DNA
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<221> misc feature
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<400> 236
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caactggtct catteettag tettgtgett ttaaagggca gacgatgtge caactatttt 180
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<211> 512
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ttttgaattt cttatgagat cgagaatgaa aatgtataat ggtacaatat tcttcatgtt 180
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ctagactaat caagcgatat aacatctatt tgccatgaaa tgcaagttag tattttatca 360
atagccaata tttagtatcc ttgcactcca cagtacaaca ataaagatta tatatttgta 420
aagattcagt aatattttta gctatttggg tcatgcttca ctgcattttt tataacagct 480
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512

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PA-0020 US
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<400> 238
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<221> misc feature
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<221> unsure
<222> 275, 444, 446
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<211> 180
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<211> 561
<212> DNA
<213> Homo sapiens
<220>
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<400> 241
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aagaatttaa gaagttaatt aaaattattt taatataatt totootttat tttaataaca 240
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<211> 510
<212> DNA
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<222> 47
<223> a, t, c, g, or other
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<211> 558
<212> DNA
<213> Homo sapiens
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<221> unsure
<222> 390, 435, 522, 546
<223> a, t, c, g, or other
<400> 244
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<212> DNA
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<220>
<221> misc feature
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<400> 245
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gaggagcatt gtgacacttt gagggatgat ggatatgttc actctcttaa ttgtagtatg 300

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  <211> 436
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  <221> misc feature
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  <222> 22, 172, 401, 413, 423, 430
  <223> a, t, c, g, or other
  <400> 246
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  tccaaacagg ctcacttccc ccagccccca aaatgaacag tagttttaat agcaaaagat 240
  ataaaaagtt tttttctttt gattctttag agccaactgt gaaagaggtc agcaatacat 300
  taacagcagc aatggacaag gaagagcaaa atagaggatt aaagtatctt gctggacgtt 360
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  <211> 319
  <212> DNA
  <213> Homo sapiens
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  <221> misc feature
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  <400> 247
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  tcaaaaaagg taatgaaggc aaaaattggc agacatccag catcttgttt ctttttaaaa 180
  caatgtggat gataagtaat ttcatgatta aaaatgaatc ttttaaataa atacattgta 240
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· ccctgtagct caagccact
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  <211> 641
  <212> DNA
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egecegttag aagggegetg tgetggagta egaaceegge eeagagaage caetegeeet 540
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<221> unsure
<222> 161, 173, 185
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<400> 249
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<211> 298
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<213> Homo sapiens
<220>
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<221> unsure
<222> 29, 76, 119, 126, 140, 146, 187, 194-195, 263, 282
<223> a, t, c, g, or other
<400> 250
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gcaacctaca cgccangtat ctcggaggag caggctcctg cacacgcggg ctctgtgana 120
ccaganggtc tatttgttcn caatantgaa gggcatctag aattagctac agtaaggaat 180
cgaaagntgc ctgnngaatg ggcacagaac ggctgcgtcc gaaaatggcc tgtcacttgg 240
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PA-0020 US
<210> 251
<211> 597
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<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 393928T6
<220>
<221> unsure
<222> 539
<223> a, t, c, g, or other
<400> 251
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aatgctgcct gaaattaaca tattcccaaa ggtaaaatgc atattctctg aaatgcattt 180
tattatgaca atggcatgta tttactcata aaaacaataa acacagacaa ttctacacta 240
gctctcaatc tgtggattta aaatttcagg ttaaaatcag ccatccacct tgtataggga 300
gaagagttct gctagtgttt acaataaagt gattccttgg gattagaaat agtaatgctg 360
tttttttatt ttgaagtggg ttctacttat gattggtttt aattctggca tttcatcttg 420
ccaactacta tcctgtttaa gcaatgttgt cagctaaaag gaatttctga ttaaactaaa 480
gtggtccagt gataagtaca tacacacct actttgaata atcccagcca attggagana 540
atgctaccac accttattaa ctaatgtaat aaatctccca ttcatggttc ttttgct
<210> 252
<211> 494
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2219992T6
<400> 252
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gagggtcacc cggcatctgt gaggacggct gggtcaaggc cataagctgg gatctgtaca 180
agggaaacat tcatcagaat gtgacccacc tgaaacagga gggaggaaaa tctttaaaaag 240
tcttacaggt aaggtcccct gccccqaaaa aaaaaaaccg tcaaaataat aagggggtaa 300
tgtacatttc tcacccaqtc ttggcaccaa ttttgtgctt taaaaaaatat actccactgt 360
aagatttact taaaaaaagg tactctacag cagctgttta aaacataatt cttacagaca 420
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acctgtgcag aaat
<210> 253
<211> 521
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
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PA-0020 US
<221> unsure
<222> 421, 497
<223> a, t, c, g, or other
<400> 253
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gtttatcagt aagctagggg aaacaaatta catacattgt ataggtagta acctatgaaa 180
aaagtggaga ttaggtaaaa attattaagt gaaattattc atatgctttc agtttcatct 240
ttctcctggg aaagccccaa aacaggcctc tggaaaacca atttcataca tgtacaaaat 300
ggcatctgct ctcaaataga tatagctttc cttcaatggt agataagtca cagacgtatc 360
tcaqacattc atttcatgca taaggatttt tgagacatct attccactga aatattataa 420
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<210> 254
<211> 468
<212> DNA
<213> Homo sapiens
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<220>
<221> unsure
<222> 178
<223> a, t, c, g, or other
<400> 254
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aactagccta gaaatcagag acagcactat gtcaagctag tatacaaggt caaagacaca 120
atgctgccaa tgcaattagt atatagaaat aatacgcagc tgttagaaaa agtctgtngc 180
caagtggata aaacagtagc agtgcactgc actgacatcc agaacagaaa atagggaagg 240
accagagaat gcacttcctg caaaaaaaaa gtccagtaga tcacaagcac aaagagttcc 300
caactgtctc accagetete taactcatgt gtacetgcae ettectettg aaatetgaae 360
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<211> 261
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 169, 195, 199, 231, 248
<223> a, t, c, g, or other
<400> 255
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caccettgtg gggetgetge tecagegget tgeagetaga etgggagtgg ttaetggget 120
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gcatcttgct gaagtatgtc accgtcagta tcccaaggtc ccacgagtna tcctgtggct 180
gatggtggag ttggntatna tcggctcaga catgcaagaa gtcattggct nagccattgc 240
tatcaatntt ctgtctgtag g
<210> 256
<211> 634
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 640841T6
<220>
<221> unsure
<222> 117
<223> a, t, c, g, or other
<400> 256
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ggtaatgtta gatactgtat ttttccatgg taaaatacaa cttatcttga agagaaagca 180
aatagttcag atcagggaga catgctgagg ttttaataaa gaaaaqcttg qccttgtcca 240
gaacacttaa caaagttcag gacaatttag gtaaaagaga tgagtgagac accagcgtta 300
ggcagggaca taggeteate atteaggett tatgtacatt actggateta tgcagetete 360
acctttagat aagtgagcta tatttttggc agagggatct tcaaaagtag ccttggatat 420
gaggaatcgt attttaacca ccaggcagtc caaggaatta tttttaaagg gacagctgag 480
tatttcacgt atatactatt aaggcatcta aatttttggt gttttcagta tataatttta 540
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taattctttc tctactagtg gaccagttta tttc
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<210> 257
<211> 454
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 211, 214, 218, 292-294, 299
<223> a, t, c, g, or other
<400> 257
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aagcettact gettaaaaaa atqaqqtaaq aaatttetat eqqaaaaqtq aaactgacae 180
ataaaccaaa ccaaggtott ccctggctgc ngcngcancg ttattgctct aagttggagt 240
gttctgtttg cttttattat gtattcggag tccttattgc cattctggct gnnntcgtng 300
ttggccaagg agaaatgatg gggaaggage teggtegeet geteecaget geteagteee 360
aactttetge eegeatgegg eeegteetae eettgetggg ageeagetet ggttetgggg 420
ccccagggcg gctctaacac tgggagaggt ggtg
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PA-0020 US
<211> 519
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<220>
<221> unsure
<222> 158, 315, 439, 506
<223> a, t, c, g, or other
<400> 258
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ggcggaggtg caaggcaggg cacggcgcac aagacgangg cggccgggcg qqqtqqatta 180
gaggtcactc tcgccgtaca gcgccgtgga gaaggacatg tagtccagag cacctggcac 240
ggagtcgggg ccggtgtagg gggccatccg cgcgatgcag tactcagcct ggtcgggtgg 300
cagctcgcgg cgcantcgtc catggtaatg tagttcttgt ccccagccag gatcttgaag 360
gaagccatga cttggtctgc tgtatctgtg tcggctgtct cgcgggacat gaagtcaatg 420
aaggcctgga atgtcatanc ccccaggcgg ttggggtcca aatgctcatg atgcgggcaa 480
attetgette teetgggggt ettgenatat eataaccea
                                                                   519
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<211> 464
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1445310F6
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accggagaat tcctggggcg caccgccaag agctggggtt tgatcttgct cttctaccta 120
gttttttatg ggttcctggc tgcactcttc tcattcacqa tgtqqqttat qcttcaqact 180
ctcaacgatg aggttccaaa ataccgtgac cagattccta gcccaggact catggttttt 240
ccaaaaccag tgaccgcatt ggaatataca ttcagtaggt ctgatccaac ttcgtatgca 300
gggtacattg aagaccttaa gaagtttcta aaaccatata ctttagaaga acagaagaac 360
tcacagtctg tcctgatgga gcactttttg aacagaaggg tccagtttat gttgcatgtc 420
agtttcctat ttcattactt caagcatgca gtggtatgaa tgat
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<210> 260
<211> 513
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 1806435T6
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<221> unsure
<222> 487, 502
<223> a, t, c, g, or other
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ttccaggcgg ttcaggaggg tgacacaca cacggccgct tggaggccgc agggctgcac 180
atggcqgcaa acaccgagga ctccatctcg atattgcgga cgccggctgc ataggctgcc 240
tccagatacg cctgcttgtc cttctccgtg taggagcaga gagccccatc cagacggcct 300
tgcccttcat agaagtccaa ggtgcacatg gtgttcccaa ccactgtggt gaactcgctc 360
agetetgeag aacacageaa cageteetge accagettet tgttaaggte egtttteegg 420
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<211> 487
<212> DNA
<213> Homo sapiens
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<221> misc_feature
<223> Incyte ID No: 1859340T6
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<221> unsure
<222> 263
<223> a, t, c, g, or other
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ttataatata tacaaactaa cttctgaaat gacatggttg tttccttccc accctcctac 120
cctctcaaag agtttttgca tttgctgttc ctggttqcaa aagqcaaaag aaaatctaaa 180
aatagtotgt gtgtgtocac gacatgotog otootttgag aatotoaaac agocagaaco 240
atcccgtccc acggactgcc agncgccagg acggcttccc ggtgcctctt tctcgaccat 300
tttcacttaa aagcactgtg agtagaatta gctgtgccgt tgctgccaca agggaggcag 360
cctggtcaag aggcgtggtt tgggatgcaa taaggccact gcttcttggc cactttcctg 420
gacattttca atcctgcctt tcctgggtcc tcggagcagc tggtcaggat gggcttccca 480
ctcagtc
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<210> 262
<211> 426
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1889671T6
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<221> unsure
<222> 376
<223> a, t, c, g, or other
<400> 262
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caggacttgc tttcttgcat tagtcacaaa gcatgtgaca atctagaaaa cttcaaaatc 120
aattacattt ctttgaaaaa ggggtaacag cagttactga tacatcacaa ctaataaact 180
tataatacaa gtttcctgac atgcatttcc tgagtgaacc caaatgatca ttttttaaaa 240
caaggaagtt tcgacagttg aagtaaaata aaataattca tggcttctaa qcaacaagtt 300
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ttgtttttta aaaaccaaaa gaaaattcag aacagttttg taataggata aattaaaggt 360
atgctaccac atatanaact ttgctacagt cagttaagta ttatacaact tttcaaacta 420
aaggaa
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<211> 421
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 1908860T6
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cctggggcat ggtgggcctt ggtcttcttc ctcttcttgg tcctttttaa ttctgtccac 240
gtcaagagcc aagccaaggt actgttcctc caatgagtaa acagcactgc tgtagggctg 300
gectaagtea ggeagtteaa gataacetga aggagtegaa taacatetae ceagtgagte 360
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<210> 264
<211> 224
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
<222> 87
<223> a, t, c, g, or other
<400> 264
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gaaaattgga atgggattaa caggatttgg agtgtttttc ctgttctttg gaaatgattc 180
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<210> 265
<211> 552
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2452210T6
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<221> unsure
<222> 465, 503, 515
<223> a, t, c, g, or other
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cccttctgca cagggcctag gggaaggttc tcagcaggag gtgggtcagt ccatatgccc 180
gcagttccag aaqtgctcag gggcaaggca ggggaatgtg gtccctcctc tgcccagacc 300
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cctgactccc tgagggtctg gtcagtcgcg atgggtaaac tggtngccga actgccggtc 480
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<211> 375
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 2497145T6
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<221> unsure
<222> 235, 257, 327
<223> a, t, c, g, or other
<400> 266
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gacaaattat tggtttaaag ctatgatagt cttttgaaac gatgagtaag ttctctgagt 120
catggcagca tgatttaagg ttgaatttag aatcaatgaa ggaggagtcg atccactttc 180
cagictggtc ttccatcagc attgtccttt ttaagaaata aggtggctgg aaggncctcc 240
agaagattet tetteentet ttgtteaggt atataggace atggetteec acaettgtgt 300
aaacttctct ttgctgacag tgttgangat aatgtgattt gatcatactg tgtgcccctt 360
taaatgtcta aaact
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<210> 267
<211> 518
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2612839T6
<220>
<221> unsure
<222> 97, 103
<223> a, t, c, g, or other
<400> 267
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 gggaagtcct gcaaagtttg tcatacagtt acgtcactat aaacccaaat acaatccatt 480
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 <211> 318
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 <223> Incyte ID No: 508735T6
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 <221> unsure
 <222> 116, 313
<223> a, t, c, g, or other
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tttagcctcc actgagcttc agcaagtcat cctgatctcc gtgggaacat tttcgttgct 240
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<211> 566
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1737578T6
<220>
<221> unsure
<222> 299
<223> a, t, c, g, or other
<400> 269
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accegecaag eggtegatgg tettetgtgt gaaggecage ggeagggeet egtggeceae 120
catgcaggag aaggtgtccc ccttcttcca gtcctcggct gccacgcgca gtatgctggt 180
cacagcgaag gtggtggtgc cctggctggg ctcctgccgg gatgcccaag tcaggtactt 240
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<210> 270
<211> 453
<212> DNA
<213> Homo sapiens
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<400> 272

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PA-0020 US
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<221> misc feature
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<221> unsure -
<222> 274, 447
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<400> 270
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aattcgcctc tttgcctgta aaaaggccaa ctctacgtcc acctgtgtct catattgcta 240
tcttttattt atctctgctt aagattgcaa aagnttttga ttttattatt cacctgaaca 300
atgtattgca attccaatac acccccatct cttgctgtta tctacagctt gtgacaaaat 360
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<210> 271
<211> 331
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
<222> 2-3, 6, 8, 19, 34, 131, 171, 192, 212, 214, 220, 304, 314
<223> a, t, c, g, or other
<400> 271
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ctcccaaggc nagccccgtc cccacgctcc catgccaggg aggggtcagg ngccagaaaa 180
ggccctacat cnttgagtgg ggcccgagtg tncnggcaan ctgtctgtca tcccaaggcc 240
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<210> 272
<211> 410
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2448222T6
<220>
<221> unsure
<222> 33, 229, 350
<223> a, t, c, g, or other
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ttcaccacac attccctcaa atctccacag ttgttagaaa aacattaaaa tccatgcgcc 120
gggctctcat ttccatgtgc gcctaagctc ccaatgatac tacagatgcc agcgagagtt 180
aagttcatta aaaggagagg gctagactct ttatttcaca aaattagcna taatcttcct 240
cgcaccaaac actttgcaga caatgattat gctctgacaa aacctatctt acaacagtgc 300
ccagagagta aacatcagtc tttatcctga gtacacaaag gatgtatgan atgtgggttt 360
tgttgctgag gataacaggg tattgcaatg cagtagtgat cctacacatc
<210> 273
<211> 229
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2453340H1
<400> 273
gttgtcgtcc ctgctagtac tccgggctgt gggggtcggt gcggatattc agtcatgaaa 60
tcagggtagg gacttctccc gcagcgacgc ggctggcaag actgtttgtg ttgcgggggc 120
cggacttcaa ggtgatttta caacgagatg ctgctctcca tagggatgct catgctgtca 180
gccacacaag tctacaccat cttgactgtc cagctctttg cattcttaa
<210> 274
<211> 567
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 2474214T6
<400> 274
ttctcacaaa acatattaca aatgacagca tgaaaaaaaa atcttgcaca gtaactcaaa 60
gttcggctct acaatgtacc cttaaactgg caggacattt ttgaaatcac aaatttgcac 120
ataaagaatg tcacgaacag ccatgtatcc atatacagca atcaaataag gaacttatga 180
cctaaagcaa aggtaaactt tcttgaaact taacattcta taccaactag gcaacctctg 240
cccaggatga gagttggatt tttcaaaaac ctctaattta atagtgcagc atttcgtttt 300
ccctgatggc ctgtgtttca cagcagtttt taaagactgc ttgttcaact atagctgcag 360
cctatatccc agctatggaa aaaaaagtaa atcttagttc aatttttgcc agttgtttct 420
gtatttaaat ttaaaaaaa acacacttcc gctgggcagg tttagaggtt attatcagtc 480
tgtgcataac taaaagttca aagcaaattc aattttgctt aagggaacat tgtaaagtaa 540
caattcttgg gattacatgc ctcgtat
<210> 275
<211> 280
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2645695T6
<220>
<221> unsure
<222> 20, 139, 218
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cnaacnnntt tgncaatatc

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PA-0020 US
<223> a, t, c, g, or other
<400> 275
atttgcaaat gacagagagn gagaaaggct tcagacgcaa aggactttta ataagttacc 60
ttttgaagat gagacaagac aggttctaag ctaatcagac gtgtccacca ggtggacctg 120
cgctcttttc acaggtagng gttcctgatg tactctcggt acatggagga gtcctctttt 180
cctaggggct gcatgatacc ttggctggcc tggatgtngg cttggaagat ctctgtagat 240
tttctgtcta ctctttgggg ctgaacttca tagatgttat
<210> 276
<211> 569
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2716582T6
<220>
<221> unsure
<222> 18
<223> a, t, c, g, or other
<400> 276
ggacatacaa cacgcconga cacacagcat agcagggcct cgataatgag ataatttccc 60
cocacgtott gagaagaaga atactatgta tttotttatg aacactatta aaaaaaataa 120
acccctcaca acattctgca ggacctagag cccaagagaa cccactgaag atccatcatc 180
tgtgggatgg cggaggcagt ctctggggag caggagggaa tgtgcacagc caggggaggc 240
tgcagcagcc ttgcctctgc cgtgaatgtc aggcagtgac aagcagcaat aagggaacag 300
agggggtggc agcagtgttt ggcagctctt cagcaatctt aatcataaat tcgggtagga 360
tocaqttggt ggcattgccg ggggggcaca gaggtggtag cagctttcac ctccttgggg 420
gtgggagagt tecetetgti tggagaggga gaagagggc aatgeagagg aaggagegag 480
ggagcacagg ctgtcttaca atcttgcaga tctcagctgg accacagccg cagcgtcatg 540
agcagattaa acccgggcac tttcaggag
<210> 277
<211> 260
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 3141568T6
<220>
<221> unsure
<222> 161, 185, 199-200, 215, 217, 226, 230, 242, 246-248, 253
<223> a, t, c, g, or other
<400> 277
cagtgcattt ttgcaaacaa taacaattca ctgagagtaa taacattcac atatgtaatt 60
agagtttaaa aatgtaaaaa acttagggta acaaacactt taaacttatt ttttagacat 120
tcaataagcc cattctccca caaactgttt gattacaaag nagcacaatg ggttaactgt 180
ggcanaacat aagaaatann gcaggggagg cagananaga cttganaacn taaggctatc 240
```

acacaaacga aacaagtgac a

```
PA-0020 US
<210> 278
<211> 330
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 510540T6
<220>
<221> unsure
<222> 29, 220-221, 227, 229, 236, 260, 265, 268, 272, 293-294, 310, 317, 325
<223> a, t, c, g, or other
<400> 278
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atttaattaa tatctgagta atctcaatta ccattttcta ggaaggatag agtgtaagag 120
ctaaacattt catqtaqaaa tattaacttt caaaagttat aataccagag ttttagagtg 180
aaggagtatt taaaatgtgt ctttctttgg gagagaatcn ntttgtncnt tactgncaat 240
aatttqaaaa ttqqtaattn aatanctngt gnatatggcc aatattatgg tanngattag 300
cttctaggan aagttangtg tagcntgatt
<210> 279
<211> 62
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1285830H1
<400> 279
cccaattgga acctgggate aagtggeega ggteetgage tggeagttet cetecaceae 60
<210> 280
<211> 321
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1532801T6
<220>
<221> unsure
<222> 193
<223> a, t, c, g, or other
<400> 280
cttcactgcc ccggctggtc ccaagggtca ggaagatgga ttcatacctg ctgatgtggg 60
gactgctcac gttcatcatg gtgcctggct gccaggcaga gctctgtgac gatgacccgc 120
cagagatece acaegecaca tteaaageea tggeetacaa ggaaggaace atgttgaact 180
gtgaatgcaa ganaggtttc cgcagaataa aaagcgggtc atctatatgc tctgtacagg 240
aaactctagc cactcgtcct ggggacaacc aatgtcaatg cacaagctct gccactcgga 300
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PA-0020 US
<210> 281
<211> 282
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1747756T6
<220>
<221> unsure
<222> 225-226, 241
<223> a, t, c, g, or other
<400> 281
ggctaaaagg aagggataac tggccaagaa agggacatct atgtgaaagt gaaactgaga 120
caqtqctqqt cacaqqtcat qctqcaqaat aatacattcc caqgcactqt cacgtqgqgg 180
acccaaaaqq ccccaaqaqt gacctataac ctctccagaa gaccnntctg tgtggcatca 240
nagtccacca cagtttaagg aaatatttag gacttaacaa to
<210> 282
<211> 256
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 032467H1
<220>
<221> unsure
<222> 26, 211
<223> a, t, c, g, or other
<400> 282
aaaqaaactq tctaacqcac caaqqnctct aaaqaaacqt agttctatta cagagccaga 60
gggtcctaat gggccaaata ttcagaagct tttatatcag aggaccacca tagcggccat 120
ggagaccatc tctgtcccat catacccatc caagtcagct tctgtgactg ccagctcaga 180
aagcccagta gaaatccaga atccatattt ncatgtggag cccgaaaagg aggtggtctc 240
                                                               256
tctggttcct gaatca
<210> 283
<211> 371
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 511038T6
<220>
<221> unsure
<222> 349
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<223> a, t, c, g, or other

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<400> 283
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caccatggac agcaagactt ctgtcccctt tcatttcaga ctggactttg gcatggtctg 120
ggtttggtcg ttaaggtctg gttcaagatg aggcctcaca gagagcagat caaatcaaac 180
caaccatctg gtcaatctgt cgcatgtaga tgctctttaa gggcagggag tacctcctct 240
catcaggtac acgattgcag ttggagctgg agttgatgac ttttaactca tgaggtttcg 300
geotyteac agacttteec cettygteet geoeteete tteagagang aatteettee 360
atgggcaaat t
                                                                   371
<210> 284
<211> 577
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1383823T6
<220>
<221> unsure
<222> 548, 550
<223> a, t, c, g, or other
<400> 284
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gcctaggcct ccacggcccg gccgttgatg acgcggatgt ggcggatgac gtcctggatg 120
getteagatg ttgtgeeetg geeeeegatg teeggagtgt geatattete attgteeatg 180
gatgccagga cagcettacg gatggaggtg gcataggagt gcagettgag gtggtccage 240
atcatgcage tggccagcag ggtggccgtg gggttggcga tgttcttatt ggcgatacte 300
ttgccggtgt tcctcgtagc tgtttcaaac accgcgtaca catggccata gttggcccca 360
qccacaaqgc ctgggccccc gaccagtccc gcgcagacat tgttgacgat gttgccatag 420
agattgggca tcaccatgac atcaaactgc tggggccggg acaccagctg catggtggtg 480
ttatccacaa tcatgttctc gaaggtgatc tgaaggtagc gggctgccac ctccctgcaa 540
cactggangn aaaagccatc gcccagtttc atgatgt
<210> 285
<211> 365
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1517291F6
<220>
<221> unsure
<222> 297
<223> a, t, c, g, or other
<400> 285
ggcatgacca cgtccagtga agacatttga ggcagcacat ctcaggaccc aggcaataga 60
ctggccccaa ctcaggctgg actaaggtgt gattaattct ttgttttttg tgtggaacag 120
ctcaccttgt cagacagcct cagggcatct ctgagacaca ggggcagaaa atgacattca 180
tettttgagt ceteateeat ggagtgetgt gtttgggggg etgeatetge tgaagegaga 240
accecattet gecaceceae caggatgeee attetecagg attetecaae ttactantag 300
actaaaccag aacaagcaac aaactgtatt tatgcaagca aaattgatga gaaaattata 360
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PA-0020 US

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365
ttcaa
<210> 286
<211> 206
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1862017H1
<220>
<221> unsure
<222> 110
<223> a, t, c, g, or other
<400> 286
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cgaaaatgtc ttcaggctgg aatgaacctg gaagctcgaa aaacaaagan aaaaataaaa 120
ggaattcagc aggccactac aggagtctca caagaaacct ctgaaaatcc tggtaacaaa 180
acaatagttc ctgcaacgtt accaca
                                                                   206
<210> 287
<211> 429
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1922735T6
<220>
<221> unsure
<222> 387
<223> a, t, c, g, or other
<400> 287
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ccaagttega tageagttte etttaaggtt gateeatttt tgtgtgetgt ettageaate 120
tttgctgcct tgtcataccc tatatgagga ttgagagctg tcaccaacat tagagactca 180
ttcatcagct tgttgatcct ttctgtattg gcctggattc ccaccacgca gttttctgta 240
aaggaaactg aagcatcccc cagcagcctg gctgagtgta acacattttt aatcatcatt 300
ggcttgaaaa cattcaactc aaaatgtcca ttgctgcctc cgacagtgac agcaacatgg 360
ttccccatga cttgggctgc aaccatngtc atgcttccca ctgagtaggg ttcaccttgc 420
ctggcatga
                                                                   429
<210> 288
<211> 467
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2116322T6
<220>
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PA-0020 US

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<221> unsure
<222> 43, 122, 125-126, 130, 162-164, 169, 200, 240, 373
<223> a, t, c, g, or other
<400> 288
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ttataccata aaaatcaagt actcatgtac ttgttagagg tggcaggata tttgtttctc 120
enggnntttn getetaagaa attacaettt eagtaceagt gnnntgaeng aaceaetgge 180
aaactqttqq aaatqtcttn tggattagtc agtgtaccat ttcataaagt gcttctggan 240
ttaaaatctg ccaagctgtc aaaagtgtcc acacttttgc aacaaaggat aaaagatccc 300
agtgggtate accgagteet teccagetgg gteteattat tggeaetget getttaacet 360
ccaageeget ggneeteace ccaggegaac teetggeegt teeteaggta gtggattgta 420
atttggatcc tcatctggtg tatcaaaaat agctttcaaa atagatg
<210> 289
<211> 310
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2366633F6
<220>
<221> unsure
<222> 28, 160, 172, 213, 254, 305
<223> a, t, c, g, or other
<400> 289
gaaaatagag aaagtcaaac ctcctccntc ccccaccact gaaggcccca gcttgcagcc 60
tqacttaqcc cctqaaqaqq ctqccqqaac ccaqcqqccc aagaatctqa tqcaqaccct 120
catggaagac tatgagacac acaaatctaa aaggcacgan agaatggatg anagtagtgt 180
cctcgaggcc acacgggtta atcgaagaaa gancgcactg gctttgcgct gggaagcagg 240
gatctatgcc aacnaggagg aagaagacaa cgagtaaact tccttcaacc caggaagcgt 300
                                                                   310
ctttngtgct
<210> 290
<211> 519
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3271754T6
<400> 290
qtaaaaattt ttatcaqcac tcattccaqq agttqtqtca attacaaaca atgcattqtc 60
acatgacaga cttcctqtqt ctccacttaa tqactccctt tqqccactat tttcaacaaa 120
acataaagta teetetteat teteaetgtt tteagactgt tggettteat eactgetgag 180
aactagtaag acagaattat ctttaccctg agatgtgttg ggcgcagacg tgtatagttt 240
ggtatcacat tcaaaatcta cattcccttc actgttcatg tcttcactga cacttataac 300
tgtggactct tcttcatcat cactaccacc acaatcacca aactttgtca agtcacttgc 360
ttttatqqqq ctctttttgt tqttattcca tctqcctact tccacagttg caaatgtttg 420
agttaatgat ticattacag ceteagagtt eagattagag tgeaetgata eageattitt 480
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519

attttggggg gttgatgtct ctgagaaact aactgttga

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PA-0020 US
<210> 291
<211> 535
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 161115T6
<220>
<221> unsure
<222> 292-293
<223> a, t, c, g, or other
<400> 291
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atccagaaat tgcagcactg tattgataaa gggctctttt cattaccagg gaaagaattt 120
aatgteette etteeteec aaaagettee ttggtgeaat eeagtacaga aaaegeeace 180
actttctgat gccaggagaa aagcaaaata aaaaaactgc ttgcacacat tagcactgat 240
aaaacaatga caatttcact aaaagaatgt ttaaagacta ccggatgctg gnncaaacca 300
actteatgae tgeattaaca taagetaagt tacatacact teaaatgeag tatagaatta 360
acactgcata totaaatggc toatatataa aatgtgtaat taaaacccaa acatacacac 420
tatgtttatt acattcccct acattgaaag tactgagaac aatttaactc tgaacacaaa 480
agtttagtga atttgctact gttccattac aggacaatta aaaatgagac tatat
<210> 292
<211> 415
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 308581T6
<220>
<221> unsure
<222> 393, 408
<223> a, t, c, g, or other
<400> 292
tcactctttt cttcatcqqq ctctttcata tctaaqqqtt cattttqaqt gtctactqta 60
cttggacctg tcgcttcctg acagttgccc tcagttcctg ctggagaacc aggaacttct 120
gtottgattg gtttctcgtc cottaatcct gtttcttcac cotcttcttc gttgtgatcc 180
ctacctactt ctgtactgtg cgctggaacc tccttgggct cagctgcttc ctggttggtg 240
aattetttet etaaactatg eeetgtgett gtetetaaet ettgggggae etetaeeata 300
catttgtcat catgataaac tgtgtcatca ctatgcccta aaggacacga ggccactgtg 360
cctqcctqct cttcaacctq aqtcactqct gcntctccca cattctcngt gtggt
<210> 293
<211> 461
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 394087T6
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<400> 293
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 gacacaatgc tgccaatgca attagtatat agaaataata cgcagctgtt agaaaaagtc 180
 ggaaggacca gagaatgcac ttcctgcaaa aaaaagtcca gtagatcaca agcacaaaga 300
 gttcccaact gtctcaccag ctctctaact catgtgtacc tgcaccttcc tcttgaaatc 360
 tgaacattat aataccacaa qccactttca qctccaqtgg gaaggtccag cacacgccga 420
 tatttcgtcc tgttcccgtc atctcatatc taaaagtcat g
                                                                  461
 <210> 294
 <211> 559
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc feature
 <223> Incyte ID No: 511300T6
 <220>
 <221> unsure
 <222> 527
 <223> a, t, c, g, or other
 <400> 294
 ccattaacaa aacaattctq qtactacaqa ccaqtqqtqt caqaataqqc ttaqtqcctc 60
 cttgtttgtg tttgttttgt tttaattgca tgagcactct agatggtaaa gttttcagag 120
 ttcattttat gcagggccat tctcagtcct caatgtactc ccacagatct ttttcatagc 180
 cttcatgcac atgctgtaac aaaacccttc gtcgactctc acagtatctg tacttgtctt 240
 gtactttctg ctttatatcc tgcagagaat cttgggaaat atctcgttca aggtagcccg 300
 agagcacctc tgtggcattc tctagatctg cttggttatt ctcaaagata atggactggt 360
 tattcttttt qaggtagaaa gcgaagacat aagtgtacat gagtgtggca cgacactggc 420
 agaggacate aactgeette tteaggaact geaceteaat eeaggacatg ttgtgetget 480
 gcatctcctc cattttctgt ttcacctgag catatagttt gtgctcnaag cgcaggctct 540
 gcatgtggtt catatagcg
                                                                  559
 <210> 295
 <211> 472
 <212> DNA
 <213> Homo sapiens
 <220>
  <221> misc feature
<223> Incyte ID No: 604978R6
  <220>
  <221> unsure
  <222> 143, 145, 150, 156, 361-362, 402
  <223> a, t, c, g, or other
  <400> 295
  gegggegeag geggeetgae eetteegeag geeteegagg agetgetgeg tgageactae 60
  geogagetge gtgaaegeee gttetaegge egeettgtea agtatatgge eteegggeeg 120
  gtggtggcca tggtgagtat cengnaagen ggeggnegge teegggaeee eeaceeege 180
  gtgataccgc gcccgttcct ccgcacaggt ttggcagggg ctggacgtgg tgcgcacctc 240
  gegggegete ateggageea eqaaceegge egacgeeeeg eeeggeacea teegegggga 300
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tttctqcatc gaggaacctg attcacggca gcgactcggt ggagagtgcc cgccgcgaga 360
nncqctctct ggttccgcgc agacgagctc ctctgctggg angacagcgg ttggggaact 420
gggctgtaat gagttagccc ggcagattgc gcgttaacag agggttttca aa
<210> 296
<211> 550
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1218053T6
<220>
<221> unsure
<222> 25, 56, 363, 404, 448, 452, 473, 477, 522
<223> a, t, c, g, or other
<400> 296
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tttacaactt tacacattgc ttttacatca ctctttgtta cacttgcagt tccacaaatg 120
tgggtggtta agatactaaa tatttatata taagtctgcc ttttccaaag aaaataataa 180
atggtatgtt catatttata ttctgtatca aatataattt tactgaaagt tctcagaaat 240
aagcagtaaa aataggatto atoototatt cagaaccaca aagatagtac agactgaago 300
ttttaaaaatt ttattaccct attaacatca gtaactcact tattttaaaa taacttcctt 360
aancttaaca ttctqqcaaa aqtttaattc cccatqtatc aqtnacaaat caagaggccc 420
tttgtggttt tatgagacct aggctggntc cnttatgatt aagacacaaa gcncaanatt 480
qcataqqqta cqaaqtccac attactcacc qaqatatqqa angctcqcac tgtgcctatg 540
ctccatctgc
                                                                   550
<210> 297
<211> 509
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2191256T6
<220>
<221> unsure
<222> 41, 64, 72, 77, 79, 83, 91, 95, 106, 112, 117, 141, 177-178, 181, 200,
213-215, 473
<223> a, t, c, g, or other
<400> 297
qccagtggac cagtgagggg tgagggcacg tcctccgaag ncgaggggtg gcatccctgc 60
ccangggeet tngcetnant genetaaggg ntggneeete agacangete angggangte 120
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ngcccttcac tgtcacatcn gccttggttg atnnnaggga ggttgatctc tctcagggag 240
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gcagtaggag atgctggccc caaggttgag gtatcagtta gagcagaaca attggaccta 420
gagctggttt ttcctttggg tttaggtgta agtgaactat tatcattgga gtngagaact 480
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<222> 398-399, 426
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aacacacaga cattagtttc agtatctcaa catatttttg gtcataacca aggaaataca 180
tcaaaataat gacaacattg gctaatattt tacaagcaaa tatttaactc tgcatagttt 240
atacaatagg ctgtggcaat aaataatgtc accaatctca tcaactatta actggccaca 300
agaagcctaa cattcatttt aattatgata tgaaatgctc tattggtgta gtttcaacat 360
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caaqaccaaa qqtqtqqntq aqqtcaccat tqtcaacntt ttqaccaacc gcaqcaatgc 240
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<223> a, t, c, g, or other
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qaaqtcqctq qcqctqctca aqaccqtaat tntcqtcctq aqcqtcttca tcqcctqntg 180
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ataaacacac aaatatatgt ctgaagttga agattaagat aataaaccag agttgaatac 240
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aaacttccct ttgtagtcac agagattaag tttccattcc cagtgcttaa atatggaagc 360
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tattttttaa attacataat gtattacagg aaagcattgg naaaataaac aggggtaaga 480
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PA-0020 US
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 tgtggcaaaa aaaaaaaaa aaggaaaaga caaaatgact gacacagcca ggttcattct 180
 tgtcttggag ctgaggcagc agccctagct cctgctacag acggaatact ggaggacggg 240
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 gtcagtgccc gctcctccct gccacgggca tcagccatca aggcactgga cgtctacttc 180
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 <222> 333, 398, 404, 422
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  tgcttgttgg ctttaacatc cacagtgaac acaagtaggc tgttgttttc tatcttcttc 240
  acagcctact cagtggtcag cggaaacttg atgataacat ggtggtcaag cttatttctc 300
  ctgggggtgc tcttccaagg atatttgggc tgnctccgga gtcacagtgt cttgggccgc 360
  cggaaggtgg gtgacatgtg gatcttgttt tttttgtngc tgtngacatc tttcaacact 420
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  <210> 306
  <211> 429
  <212> DNA
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<400> 308

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PA-0020 US
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<222> 290, 337, 347, 379
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<400> 306
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aaagagcaat ttcacagaaa tgaagccagt tttttctta taaacaaatc accaattctt 180
ggttcaaaac tgacatctgt tatgaaaatt accatatcac atatttgtaa gatgacaagg 240
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qqaqaaaaqq atttttaaaa aatatacaaa gattaanaac atttggngtg caaaattaaa 360
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<221> unsure
<222> 342
<223> a, t, c, g, or other
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gctgacccac catgatcagt gtggttgtct cttggctggt ggccctggat tacatctggt 180
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gttagtgaaa aagagtggtt taagtctgac tcagagatag tctttccaga tgaattgact 420
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aggeccagea caaageeece gacteeacte ageatettge tetgtgeaga tteagacegt 420
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349, 406, 494
<223> a, t, c, g, or other
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actettaaat ttaaaattae tgetataeea eetattaaaa taaetttaga taaaatgeet 360
tcttttagca acctgctggt ttatttaaaa aattgtttta gaattatagt gatcaatatg 420
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<222> 37
<223> a, t, c, g, or other
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aattttetta tytyttaeta ytetaeatae eecatyttt etytaateat geagatytya 180
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<221> misc feature
<223> Incyte ID No: 1825132T6
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<210> 314

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<400> 313

387

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<213> Homo sapiens

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PA-0020 US
<211> 383
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<210> 317
<211> 468
<212> DNA
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PA-0020 US
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<222> 266, 274, 280, 283, 319, 352
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<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2180426T6
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quatgaaaat caattacatc actaatcata ctggctcagt tgactttttt taaataacaa 240
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<210> 320
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<400> 322

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PA-0020 US
<212> DNA
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<221> unsure
<222> 450, 486, 507, 513, 521
<223> a, t, c, g, or other
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<210> 321
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<212> DNA
<213> Homo sapiens
<220>
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<223> Incyte ID No: 2203287T6
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<222> 84, 89, 171, 179, 201, 231-232, 244, 255, 313, 315, 365, 371
<223> a, t, c, g, or other
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<211> 407
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<221> misc feature
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<222> 12, 15, 26
<223> a, t, c, g, or other
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ttcgaattac atccagagct ccagtatcaa agccgcacat atccaacatg cctctatcat 180
ctgggtctgc aatggtgaaa ccatttgatg tcattccaca aacaatcaat ttagctggaa 240
tatccatttt ctttcgatac tccctcagag caatagcagg atggacacct ccagcaaagg 300
tctcattatc aqtqaataca atqaaqacat caqcaggtqt gtttgtcttc tgagcccaga 360
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<210> 324
<211> 213
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2375549H1
<400> 324
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ttaagattgc agattttggt ttatcaaagt ggcgcatgat gtccctctca cagtcacgaa 120
gtagcaaatc tgcaccagaa ggagggacaa ttatctatat gccacctgaa aactatggaa 180
                                                                   213
cctggaccaa aaatcaaggg cccagtatca agc
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<211> 222
<212> DNA
<213> Homo sapiens
<220>
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<223> Incyte ID No: 2423808T6
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tettgttttt etectatete tgacetetgt gttacaacet ttgetetgtg getetcaaga 180
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gacttttctt catttggaag ctggggaaga gttcgtctcc tt
<210> 326
<211> 186
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2446704T6
<220>
<221> unsure
<222> 2
<223> a, t, c, q, or other
<400> 326
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agggccaete agtgtccete getgggacag gttgtgtgac etgeccaagg ggeteegget 120
catttgccaa agtcaagacg acgaccaggt cttctgactg ctcagcccaa ccaataatga 180
aaaaag
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<210> 327
<211> 367
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<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 2452667F6
<220>
<221> unsure
<222> 47, 84, 256, 301, 306, 309, 312, 350
<223> a, t, c, g, or other
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agtttacatc gggcgttagc accttgcagg aggagactac tgtgtctctg aatactgtgg 180
acagcattga gagttttgtg gctgacatta acagtggcca ttgggatact gtgttgcagg 240
ctatacagtc totganattg ccagacaaaa ccctcattga cctctatgaa caggttgttc 300
nggaantgnt anageteegt gaattgggtg etgeeaggte aettttgagn cagactgate 360
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ccatgat
<210> 328
<211> 551
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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gttaataagt tcaaggcata cttcaaggtt aggatcaaaa tttggccagg gcttcttaag 180
ataqacctta aaacattqca cqttqatqtt cttttqaaca agtttqtctc caggaccagt 240
aaatatqaca ctttqqattt taaqctqatt aaaqaqaaca ggttttatta ataaagactg 300
atctcaaaat gctgggattg ataaaagaat taaagtttca acatatcaat tttaagaagc 360
aaagtgtttc aacaactgag aggtaagaaa atcttgttat ttgcatgtat ttttatataa 420
tcaatcaggt tgcagattct aaaattgctc atatccagca tgatggtgct tgagaccaat 480
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cacaaggaag t
<210> 329
<211> 479
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 16, 164, 187, 296-298, 308, 317
<223> a, t, c, g, or other
<400> 329
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gtttggaaaa gaagacgaat gatagatatt gagccccttt aggaaatgtt gccagtattt 120
gaatttggct ttcatagtta tctcttgcac acgaagtaga gtancatggc tgataacaag 180
aggtcanatg tacaagttgc tctaatatgg cctcaatgag gcaccagctt caaaacccgc 240
ttgctgataa ttcaggtatt catggagggt caagacttca aagtcatgta cttccnnngc 300
ccagtagngc atctggngtt gcttaaggga gtctgtcagt gtagggtgca tagaattgtt 360
ctctggctat atcccattct aggaatcact ggatatccat ctggagtgga gggctgttaa 420
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<210> 330
<211> 247
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2702380T6
<220>
<221> unsure
<222> 18, 22, 27, 52, 60, 81, 115, 126, 170, 177, 195, 232, 236
<223> a, t, c, q, or other
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gggcgatccc aattacacca naagccaaac gacttccagc gtttcctgtc trtgnacttt 120
cttcanttcc acctttqccc aaqtcatctq ctttttcatq gaccaccagn gtgcggncaa 180
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catcttt
<210> 331
<211> 434
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 2744270T6
<220>
<221> unsure
<222> 356, 395, 400, 417, 422
<223> a, t, c, g, or other
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ctgcacacac actaaactaa caatgcctct aaaactaatg attatagcaa aaaatgtctt 120
cacattaaaa ttctgctttt tatgtttttt tccatttttt acacaattac aaaagaaaaa 180
ataaaagccc taaaatcttg attattttc ctttttttgg accaaatact cattttcctc 240
taagtttatt gacctgtgaa actttttata caataaaatc tttcaagtga aagattaggg 300
ttaaaaagaa aaagatggat atcttaaagg gtacagcgaa tgctcagaac aaaggntgat 360
qqqaaaatqq tttcaqtcac tgattatttc attanccttn gattcactcg ccctttnatc 420
cntccccaac ccca
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<211> 170
<212> DNA
<213> Homo sapiens
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<220>
<221> unsure
<222> 88, 119, 136, 141, 146, 150, 155, 161
<223> a, t, c, g, or other
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tgcctggaga tgagaatgca gaaatggntg ctcgaaccat cttactgaat acaaaacgnt 120
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<210> 333
<211> 324
<212> DNA
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PA-0020 US
<221> unsure
<222> 173
<223> a, t, c, g, or other
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tccaggcggt tcaggagggt gacacaccc acggccgctt ggaggccgca ggnctggcac 180
atggcggcaa acaccgagga ctccatctcg atattgcgga cgccggctgc ataggctgcc 240
tccagatacg cctgcttgtc cttctccgtg taggagcaga gagccccatc cagacggcct 300
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tgcccttaat agaagtccaa ggtg
<210> 334
<211> 445
<212> DNA
<213> Homo sapiens
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<221> misc feature
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catatcaatt gcacattgtt cctttgactt aataactgca ttcttgaaac agaggttagc 180
tatttcactg tatccagaaa cgtggtagaa attctgaccc atcattcttt tatctcagtg 240
acaacaccaq cagctattqt agaaccaccq taacqtaqca tgaacctccc cagctcttta 300
aagtetttat atageteaag agetattggt etttgtgtet gtagetetae caatgeatte 360
tggcctttag tcaaaaactt aggctttttc tttgtgactt cacccgtgct tttgtttaag 420
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<210> 335
<211> 515
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2873229T7
<400> 335
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acccctcaca acatteteca ggacetagag eccaagagaa eccaetgaag atecateate 180
tgtgggatgg cggaggcagt ctctggggag caggagggaa tgtgcacagc caggggaggc 240
tgcagcagcc ttgcctctgc cgtgaatgtc aggcagtgac aagcagcaat aagggaacag 300
agggggtggc agcagtgttt ggcagctctt cagcaatctt aatcataaat tcgggtagga 360
tccagttggt ggcattgccg ggggggcaca gaggtggtag cagctttcac ctccttgggg 420
gtaggagagt tccctctgtt tggagaggga gaagagggc aatgcagaag gaaggagcga 480
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<210> 336
<211> 201
 <212> DNA
<213> Homo sapiens
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<210> 339

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PA-0020 US
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<221> misc feature
<223> Incyte ID No: 2890054T6
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<221> unsure .
<222> 21, 133, 183
<223> a, t, c, g, or other
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cactaagcca tgccatgccc aggagactgg tttcccggtg acacatccat tgctggcaat 120
gagtgtgcca ganttattag tgccaagttt ttcagaaagt ttgaagcacc atggtgtgtc 180
atnotcactt ttgggaaagc c
<210> 337
<211> 480
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2958621F6
<400> 337
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acatttatti qqqtttiqtt cttatttttq tttttaatta agggagtagt qqqqtagatg 120
tgagttcatt gtggcatica gcttatattt gcttggcttt ttcatggtcg gtgacaccct 180
aattcctagc atgataaata gtaacccttt gtgcttgatt ttgtttaact tatttgagtt 240
gttttcaaaa tacattcttt ttaatttaaa aaatcagcta agcttgtgta tggttaagtt 300
tttgttttgt tttgtgtttg atttgttctt ttagggaaaa aatcctataa aatggctatt 360
aaatttttag ccaatgacaa tgagattttc ttaatattac tttgaattct ttacctctta 420
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<210> 338
<211> 279
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3034495H1
<220>
<221> unsure
<222> 162, 210, 233, 253, 255
<223> a, t, c, g, or other
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atttgaagaa ctatggagaa atggtacttg atgacagtag tggttttaat aggactaaca 120
qtacqatqqa caqtqtctct taattcttat tcaqqtqctq qnaaaccqcc tatqtttqqt 180
gattatgaag ctcagagaca ctggcaagan ataactttta atttaccggt canacaatgg 240
                                                                   279
tattttaaca gcngnggtaa cgattacagt attggggat
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PA-0020 US
<211> 364
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
<222> 203-204, 211, 216
<223> a, t, c, g, or other
<400> 339
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aaattcagaa tttcaaactg catgttcttt ttctaaattg cccacagtac tcgaggttcc 180
tgaagctaag gcagctgttt cannacaccc ngggangagg tagcagatgt caagggattt 240
ccatttetet ttegatgeeg acataettea gggeateage etggetgtat etgtaateaa 300
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<210> 340
<211> 540
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3326096T7
<220>
<221> unsure
<222> 456
<223> a, t, c, g, or other
<400> 340
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tgttttatga taaacaataa tactaaatct gagttgtatg aactgttaac ttgaaatttg 180
ttttagatgt ttagcttaaa acaaaaagaa aaccaatcac attaatacac tgttgcaaaa 240
gtttctccgg aatgccctcc acatcactgt gtgtcagcat ccttcggctt cttcactgag 300
gtatggaatg cagccatatg taggtgtcaa ggcactcatt ctaagctgtc ctatcctgca 360
catcttagca atcacattag atggagggct gatgatatgc actaactccc aacccaggct 420
atcttgcttt taaataaact aatttcttta aaaganaatc atcaactaag gactcaaatg 480
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<210> 341
<211> 249
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<223> Incyte ID No: 3728208T6

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acagttgtct tcatagcatt tacaatgcat taggtattat aagtaatcta gagatgattt 180
aaagtataca ggattgccta gttataggca aatacacttt tctataaagc acttgagcaa 240
aatgtatat
<210> 342
<211> 229
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 023582H1
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aaatgtgaca tocagatgac ccagtctcct tocaccctgt ctgcatctgt aggagacaga 120
gtcaccatca cttgccgggc cagtcagagt attagtagct ggttggcctg gtatcagcag 180
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<210> 343
<211> 197
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<220>
<221> unsure
<222> 71, 76, 114, 130
<223> a, t, c, g, or other
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cctagcttcq ntcgtncqaa ttcagagcac gtccttccga ggtgaaggaa cgcnaaactc 120
cacccatcon attgctgttc ggctgcgggc gggtcctttg gtcgggctga ccctgggtga 180
geggeeegga geeaaga
                                                                   197
<210> 344
<211> 543
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 108485T6
<400> 344
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ttattetttt cettttetga gtgattaage atgtettgag cetettttet tteteettee 180
actttttcga gattatgttt gagatgcttc acctcctctt gtaaagatgt aattcgagct 240
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gettgeaget ggtaataate tttgtetgtt tgtgaettag aattetetaa aattegattt 360
ctctcttgca actctctgtt cagggactct aactgactaa ttgacttgct catctctgtg 420
tgactcttcc tcaatcttac agctgtgtcc gattctgtcc taagtaagtc attggcttct 480
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<211> 425
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<213> Homo sapiens
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atcagtggtg ggaacgacaa acaaggtttc cccatgaagc agggtgtctt gacccatggc 240
cqtqtccqcc tqctactgag taagqqqcat tcctqttaca qaccaagqag aactggagaa 300
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qttattgtaa aaaaaggaga gaaggatatt cctggactga ctgatactac agtgcctcgc 420
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cgcct
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<212> DNA
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ggagggggg gatctgggtt gagttcccac tctcgttatg accttcaacc tctcactgtt 180
cccaagggct gcacggagcc tgctgagtct ccaacccacc tcgctcaccg ctctgaccac 240
tgacaggcag agcaaaggat gcgggagttg cctctgctgc ccatctaagg ggacgtaggc 300
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aggagteett caactattge etgecagaga cecaattgea gggaetgtag tetgeatetg 420
gatgagctgg gctgtagatt gaagtctcag aagcagggaa ggttggaagg ggtagggtcc 480
                                                                   522
cagageceat gggagttatt getgaggaag gatatgeagg gg
<210> 347
<211> 452
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 450739T6
<220>
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<211> 435

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PA-0020 US
<221> unsure
<222> 367
<223> a, t, c, g, or other
<400> 347
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aacttgctat gggtaccctg cagcatgcgt taatgtgcac tggtatctgg aacctcggtt 180
tttcccatca atgagcagaa gtggcatttt cctgaagtag tcaataatat ctgacacaga 240
cagaaagtcc tctttccctc ggagtccagt tcccaacaag taaacttgac tttccttctg 300
ataacggatc tggatgttgt aaactttatc tttgtacaac accatgagga catatggatt 360
agttgtngtt tttttagage tgtctctgae cagaaatgtg ccatcctggt ttatctttct 420
                                                                   452
aagagcagct tctgcctctg gtcgggtaat at
<210> 348
<211> 452
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 502311T6
<400> 348
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atttagacag gcaacttttt gatatagagc ttatttatac tgaagaatct ggaacaaaac 120
acaggacaca gtactaatct gtcaaatata ctatgaaatg catagtctcc acttaaaatg 180
ctgaatgaca cacacgtttt gcaagcatta ctgctttcca caaaaactgc tgaataggag 240
ttccgtccct gccaagatca gtgtttaaga gatactttat gatgctgata agtattattg 300
gtggtggtgg tgttcagaaa gtttgtcact catgcagatg tctgaaatct tgttccgaat 360
ccatggaaca cagggtggag gccagctccc ccttttttag atgatcacat agttctgagc 420
                                                                   452
agagatgtgg tcctcaccct gcagttcctg ca
<210> 349
<211> 260
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 511666R6
<220>
<221> unsure
<222> 32, 51
<223> a, t, c, g, or other
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actcaatgtc tattctaaat taaccatgtt ttgtaccaca aactcattgc ccatggatct 180
gttgctgaaa caaggaagtc ttaaacaaga agtggaatct ttctgttatc agattgtgtc 240
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tgaatcaaat gatcagaagg
<210> 350
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PA-0020 US
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 567649T6
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ctaagttcaa tattcataag ggctagctgg agaagaccac tttgggcagg aaattagtct 120
qcatttattt tatagcacaa ggagcaggac tagatgagcc agagtcatgg caggaggtta 180
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gcaatcctat tggttagtat ccttagcctg ttcttgaccc tagggagaat cagattcctt 300
tggtctatga cagtaataga agttatttct ttagataaat tttgtttaag gctttaaatt 360
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gctaaqaaat caacatgtta tcaggctata ctgtagttgg ttgcttctgt gttactggac 180
atgacaaatg atctggtaaa tnatgttaaa ttggcttgaa acaaganagt ctcccaattg 240
ttagccacgg tttcagtcag ccctggatga aagatggaaa aatttgacat atatctcatn 300
aagggaattt gttgcttcca tggagattat agatggaggt tactgaggaa ttaggtagct 360
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gtacqccatt tactqcaacc ttqaattctc taacatcaca qtaaattatc atctcaaaqt 180
acateceagg actaaatggg aaagaggtaa tatttetete ttetteteee caggacteet 240
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qaaqaaaaga atttcttaca aatgctttaa tattcaggcg tgggttcaag tgtagagcaa 300

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aagcacttga agaat
<210> 354
<211> 256
<212> DNA
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tcatccccag catggccatt ggagcgatcg caggaaggat tgtggggatt gcggtggagc 180
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attgcattac acctgg
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<211> 220
<212> DNA
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<222> 90, 125, 174, 196, 214, 216
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ttggnaaaaa taatgcacat tttagttgtg gaaaatatgg gtcttatata tacntagttt 180
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atacttaata gaaagncatc tccttaaaat tgcncnaaac
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PA-0020 US
<211> 552
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<221> misc feature
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gtcctcagtg gtactgcacc actctggaaa aaatgccttc aggttccttc ccatccccca 180
aggeageage anateetteg tgtegeetee tactggeeaa ggeageeaaa gatttgaaag 240
tetttggete gtagatggee agateegeta ggaettteet gttgagetee acetggeact 300
taactaaatt cccaatgagc getggatact teagteeatg tteetggeta geagetgtaa 360
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tcacaaaggc tcgaatcacg gttctgaccg ccaacctgta gcagcgattt ttccttcccc 480
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cgcagccaga gc
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<211> 303
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<213> Homo sapiens
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<221> misc_feature
<223> Incyte ID No: 1369303R7
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<221> unsure
<222> 11, 23, 70, 117-118, 172, 195, 220, 247, 259, 270, 279
<223> a, t, c, q, or other
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agetggagac accatecttg gtgcctgtga agaagaatge cageacagtg gnggtttetg 180
acaagtacaa ccttnaaccc atcccctca aacgtcagan caacgtagct gctccaggag 240
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aag
<210> 358
<211> 330
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
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\langle 223 \rangle a, t, c, q, or other
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int.

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<210> 361 <211> 335 <212> DNA

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 gettnaatgg gntaatecaa caccaccage tacetgtaca acagtaagat ggtcaatece 240
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 <221> unsure
 <222> 368, 374, 417
 <223> a, t, c, g, or other
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 agtattaaag ggggacaggt gcatggcagc taaatgcctc aacaagatca tgcagagagg 180
 ggcatccatt ccctcccaag atcctaagaa aaggtacctt gctccagcct ggctgaaagt 240
 ggagcaaaga tatgcatttt ctattggatt tagggtccta gggtctgtcc tggggcacag 300
 acacctaaga ccatggcacc ttctccccag aggacagcct gagggtaaag tataaattgc 360
 tctgggangg aganacggag agaacagctg tgtctgcagt tcattgttgt gtgagtntaa 420
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<222> 21, 81, 162, 165, 196, 211, 231
  <223> a, t, c, g, or other
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  taaaataaac cccttaagga ctgaatgcgt agagcatgct cnccngtacg agaaataagc 180
  taaaaatgag catatngaac ctacatctgg nccaacacag tactgaatgc nggcaaacat 240
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  gtatcacaac acagggg
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PA-0020 US
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ctcatctgac cgatgtttaa gatcaataac ggcttatttt tcaacatgca gttaggaaga 180
gagggaagca agccaacctc tctacagtat cittttgctg gcttgttitt gtagtggtat 240
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<222> 10, 176, 359
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gcgaatatag gaaaagagga ttccaggagg tagtcacccc aaacatcttc aacagccgac 120
tctggatgac ctcgggccac tggcagcact acagcgagaa catgttctcc tttgangtgg 180
agaaggaget gtttgccctg aaacccatga actgcccagg acactgcctt atgtttgatc 240
atcggccaag gtcctggcga gaactgcctc tgcggctagc tgattttggg gtacttcata 300
ggaacgagct gtctggagca ctcacaggac tcacccgggg tacgaagatt ccaacaggnt 360
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<211> 261
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 36, 106, 109, 134, 145
<223> a, t, c, g, or other
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  cgcgcccgag aagngctccc tcgangctat tcgccgtgca gccccggccc tcgtccgaga 180
  agatogoogo catogoogag aaaatggact caaaaaagaa ogtggtgogg gtgtggtttt 240
  gcaaccagag acagaagcag a
  <210> 364
  <211> 483
  <212> DNA
  <213> Homo sapiens
  <220>
  <221> misc feature
  <223> Incyte ID No: 1569648T6
  <400> 364
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  attttctgaa acacacaaaa aagggatggg aacaatgact tacaactaag attgctcata 120
  aaagaccatc agaaagatcc ctaaacaaaa gctaaatagt tacagttaat ggtaactggc 180
  aagggattta atgcatttgc tggtattaag tttcttatgg aatgaatgaa tgaacccagc 240
  agcattttat gacacagctg ccagaacatc ccatagaaaa acaattttgt aggaacgtga 300
  tggcaacaat cagcagccaa tattctcaag agttcctaat taccaaaagc atatacaatt 360
  ttagtctaga aaaataagtc aattttataa aattaagttt ttagatcgaa aagcaccccc 420
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  gag
  <210> 365
  <211> 226
  <212> DNA
  <213> Homo sapiens
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  <221> misc feature
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  <221> unsure
  <222> 45, 191, 212, 218
  <223> a, t, c, g, or other
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  ttgtggggca gatgatcgag gcagctgaag agcgcccgtg gctgtgggta gtctatattc 180
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<222> 12, 59, 83, 91
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cagacctegg acacettgcc tgaagttteg gccataccta tetecetgga egggetaete 180
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<210> 368
<211> 610
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 1697901T6
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aaaacagaga acacagtcag aaagggcatc aacaggacag tgtcagacag cagtgcagga 180
aattttgcaa atctgattcc aggttgtaga cggactgctc tcccccaccc cttcgttatt 240
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<220>
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PA-0020 US
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<222> 28, 45
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<210> 370
<211> 569
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1867862T6
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<221> unsure
<222> 499
<223> a, t, c, g, or other
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<211> 489
<212> DNA
<213> Homo sapiens
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<221> unsure
<222> 435, 449, 473
<223> a, t, c, g, or other
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 taccatcnaa aaataaaaca aaatcagcaa ataacagtaa tggnagatga atattttac 240
· tctgtttcac tgaaaagagg ncaaaatgtt aaaacnccac agtactgcag gtgaacaatc 300
  cccatgtaaa cttcnccata tgatgtttta atgttttatt cctggnatgt aaagactgga 360
                                                                     364
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  <210> 374
  <211> 548
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cgcagaagtt tgtggctgag gtctaggctg tggggctgca cacctgccgc cgccagtgcg 480
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<211> 513
<212> DNA
<213> Homo sapiens
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<220>
<221> unsure
<222> 193, 209, 240, 257, 270-271, 362, 382, 496
<223> a, t, c, g, or other
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anactcattt aaagttgtca anaaattagc aactacttgg agcttatcaa ttaaaaggca 420
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<210> 377
<211> 369
<212> DNA
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PA-0020 US
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2326810T6
<220>
<221> unsure
<222> 367
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<400> 377
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atatectact ttttgeettt etaceaatte ecaaacatte acagttttte aaggaceaet 180
aataaaatac aggaagcttt taaagacagt aagagaacac ctagtgtaag ttaggtgaat 240
taaagatggc aaaggagatt acatcctcaa cactgacagc ttccaagact tagaaaagag 300
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<211> 541
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 535
<223> a, t, c, g, or other
<400> 378
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tagaggcaga tggtaagctt cgagcagctg atggagcttt ggccatcttt ccagaaattt 180
caattccaat ttcatcaaga acttgattca caatatcctg gctttcttct tcgtcatcag 240
aaccgtcaaa gatgtcatca agtgtatcat tgatcatttc ttcagtcatt tccattttca 300
tgttttcctt ctggaaattc tgcattgttt gtaatgtctt ttgtggatcc atcttcttgt 360
taactgcctg cattgttttt gctgtggtag acattgctcc agccatcttc atttgggaat 420
tcatcacttt tgtttgtgta gacatagaag taacttttga acttacagca aaagttctcg 480
tettetgttt cegtagatge acaagttgtt tggetaaaaa etttgeaage tteentatta 540
<210> 379
<211> 504
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc feature
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PA-0020 US
<221> unsure
<222> 234, 468, 473, 483
<223> a, t, c, g, or other
<400> 379
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getecagagt ttetgttgga acaagactet tetgttttge ttatatacag ttaagttegt 180
ttagtgtctg atccagtgtc tgatgtaagc ccacgttctc ttctttggcc tggncaagtt 240
tctcttccag gtcatcaatt gtcttttcca gttttgcaac cgttctctct gcaaattcag 300
cacgggtctc agcctctttc agtttgtcag acagaagttt aatttcttct tcatatttgt 360
cctccttttc agaatacttt tcagatgcag ctccagagat ttcagattgt tagtaacatt 420
cttgaggtct tcttccaggt caccacattt tagttcagac acctccgnaa ggntcctctg 480
centetecag etcaceetce agga
<210> 380
<211> 487
<212> DNA
<213> Homo sapiens
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<223> Incyte ID No: 2498039T6
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<221> unsure
<222> 243, 390
<223> a, t, c, g, or other
<400> 380
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tgccaaacac cacagggcat cagatgctgc tctgtgtgct cacaagtgtt ccctgtctta 180
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ggngcccctt ccaggcttgt ctctgaagtc acagcaacac tgttttaagc agtatgttta 300
attggatgat ttccacaaac tatccacgaa gtttctaacc atcacaattc agtgaagtac 360
aaaacactga gttacaggct gtgggaagan aaggcagcac caatggtggc accttctaat 420
actggttgtt ctaggggcag ggacagggaa aggtcttttt ttaaaaccaa gcccctcatt 480
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tcaatgt
<210> 381
<211> 415
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2553130T6
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<221> unsure
<222> 223, 274, 326, 380-381
<223> a, t, c, g, or other
<400> 381
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gatcaccgga gatgactcgt gctctagttc ttaaaatcaa acttgttctg ccaaatccaa 180
gaccetgaat ttgtccaaat tgtagaaaca tgcttttacc acnegtccac caaaatacct 240
cccattcaag tcaacaaccg ctttaattgc tgantcaact ctctcaaatt ctaaaaatat 300
ccqtactqct tcatcatcag gggcancagg aatttcaaat atcacacatt ttccaacttt 360
gccatatttt tcacattctn ncttgggttc aacttccaag tcttcatcca cctct
<210> 382
<211> 536
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 444
<223> a, t, c, g, or other
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agcaggtaca ggagaatcct gggtgaggat gaagaatgac ctgggatggt tttggagcta 180
qcctctqqaa tcctttctct tgaccatggc catcagcacg agggcactga ccagcacggc 240
atacaaqqtq qccttcccta qcaaqatctc atagaggatg gtggcagaca ggaccccttg 300
ctgqtaaqac tcgqaqqtqa agccacagtc tgctctaccc caggcctcgg cgctgacgat 360
ctgggtgaca ggtttggccc tatcctgggt ccactcgtca ttctccgaga gccgtagaac 420
tggacttgac agcggaagtg gttncggggg ttctgccaga aggtggccga aaaccctcag 480
qcqqcttctc aqqcaqtatc tqqaqtcatt qaqqqcqggc tgctccttga ggggct
<210> 383
<211> 122
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2729382T6
<400> 383
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tgtgaaaaat ctgcctcatc cagtaaacag tcactgaaat tttaattaag agtgccctcg 120
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<210> 384
<211> 445
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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PA-0020 US
<221> unsure
<222> 393
<223> a, t, c, g, or other
<400> 384
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cagagccagt aggggaaatt caagctttca tttgggggcc tctggggtcc tacctgctgg 180
cagttctttc agcagaaagt ggggtacggg ggatgctgaa gagggggaag tggaccccat 240
tgcctgttaa gtcccatctg tctcagtttg aagcaacacg ggaatttcca ttggaggagg 300
gttggcctgc cggcctggcc cttctctcac gccccctcta cttcagctac atttcttatg 360
catgttcctc aaagctgtga aaatcaatac aanaaaaact gacctttact tcattcctgt 420
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aacaggctat caggatctca aggag
<210> 385
<211> 543
<212> DNA
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<221> misc feature
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ctattttcac acatatatgt atgtatgttt atatgtatgg aaactacaga agcacatgtc 180
gccaataaga gctctgagac acctttgacc acttaccctt atcagatgcg atttgccaaa 240
tgagttgtgg aaacaagttt tttaaactga atttctgagc tttgtgaatt tagaaatgca 300
aaggaaagtt tgtggacatt tacagggatc atggttttat tgtcctttaa actcttcgat 360
actttaccat tgtcttacta taaatccaaa atcctaacgc cacccacgag gctttcaata 420
cctggcttct tgtgatttct ccaggctaac cttttaccct ccttcccctc agcctctctg 480
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<210> 386
<211> 471
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2822377T6
<400> 386
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atggatacag tcacatagtt tccaatgcac agctttatgc taaagagaat tcaaatgtgt 180
ctctttttt tgctaaaaaa gggatgtaaa aagtccaata tgaaacagaa cgagtgcaac 240
acgaaataca aaatatgcct atcatgtagg cttttgaaca gttaatagct ctacgtgtta 300
tctataaaca ttttttacta gtaacatcac tattgtataa atattaaaaa caaaaatgac 360
attaaaaaat agcatatgaa ctttacaaaa atggctactt ttagtcttcc taaactaaaa 420
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<210> 387
<211> 641
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PA-0020 US
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte LD No: 2835582T6
<220>
<221> unsure
<222> 212, 218, 226, 571
<223> a, t, c, g, or other
<400> 387
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aaacccctca caacattctg caggacctag agcccaagag aacccactga agatccatca 180
tctgtgggat ggcggaggca gtctctgggg ancaggangg aatgtncaca gccaggggag 240
gctgcagcag ccttgcctct gccgtgaatg tcaggcagtg acaagcagca ataagggaac 300
agagggggtg gcagcagtgt ttggcagctc ttcagcaatc ttaatcataa attcgggtag 360
gatccagttg gtggcattgc cgggggggca cagaggtggt agcagctttc acctccttgg 420
gggtgggaga gttccctctg tttggagagg gagaagaggg gcaatgcaga ggaaggagcg 480
agggagcaca ggctgtctta caatcttgca gatctcagct ggaccacagc cgcagcgtca 540
tgagcagatt aaacccggcc actttcagga ngagattcgg aacccaatca ctgacaggtt 600
ttgaaagttt aggttcgtaa ctgtttcaaa gctttctcga c
<210> 388
<211> 305
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2837720F6
<220>
<221> unsure
<222> 240, 255, 277
<223> a, t, c, q, or other
<400> 388
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caactgattc cactccaaag aaaacacagg ctcacacaca gcaaaatatg gtagaaaaat 120
tttctcagtt accattcaaa gtggaagcta aaccatgtac ctcaaattgt agaattaata 180
ctttcagaac agtgccaata gaacagaaac atgaagtctg gggttcaaac cagaactacn 240
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<210> 389
<211> 512
<212> DNA
<213> Homo sapiens
<220>
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PA-0020 US
<220>
<221> unsure
<222> 48, 61, 231, 314, 390, 400
<223> a, t, c, g, or other
<400> 389
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ncaaaggctg tgccttgctt ttttaaaaaa tgggtacatc aatgctcatt ttaacaactg 120
qcataaaatc ccactaattq gctaataaaa acagatacaa atacagaaca tttaaagtaa 180
taacaattca aqtqctqqqc tttttacaac aaqqqqqtqa taaqqaaaga natgaaaatt 240
cactgcaaac cagtetgetg aacgcatetg ttaaggttta etgtttaaaa aaagaaaaga 300
agaaaacaga aganaaaata aactgaaata gggctgccaa ttgctaccaa cagagtgggt 360
ttqqctatta catttattta qctctactqn acaccttacn agggcggaga agccactatg 420
tgttacaggc aattcacaga gaagccactt accagacaag ctgtctcaga aaaagaaggc 480
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<210> 390
<211> 592
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3137077T6
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ttacgatgca ttgttatcat taaccagtct tttactacta aacttaaatg gccaattgaa 180
acaaacagtt ctgagaccgt tcttccacca ctgattaaga gtggggtggc aggtattagg 240
gataatattc atttagcctt ctgagctttc tgggcagact tggtgacctt gccagctcca 300
gcagcettet tgtecactge tttgatgaca cecacegeaa etgtetgtet catateaega 360
acagcaaagc gacccaaagg tggatagtct gagaagctct caacacacat gggcttgcca 420
ggaaccatat caacaatggc agcatcacca gacttcaaga atttagggcc atcttccagc 480
tttttaccag aacggcgatc aatcttttcc ttcagctcag caaatttgca tgcaatgtga 540
qccqtqtqqc aatccaatac aggggcatag cggcgcttat ttggcctgga tg
<210> 391
<211> 336
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3142624T6
<220>
<221> unsure
<222> 324, 331
<223> a, t, c, g, or other
<400> 391
aaaataatta ccaacaatac attatgtaca ccatttacag gagggtaaca caaaccttga 60
caggtagtaa cttttcaccc cacatcactg aacgcttaac actcctggct gttacatgtc 120
acaggatacc actggggtca gtcactcgaa gcacaataaa tataaaatgt ggtccttcca 180
tgaaattttt gataacette teeaaaaace eeacaaaggt gaggtttaaa agaagtttte 240
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tcagaatttc aatgatcttt ctcgtcccct acaaaaagtt cacaaaagca acaaaatgag 300
ggctgatcct accacaataa gacnttttgg nccagg
<210> 392
<211> 564
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3294993T6
<220>
<221> unsure
<222> 519
<223> a, t, c, g, or other
<400> 392
aggetttgga caetttagta gaacggaace agggggtaag gtttccagag aagteetaga 60
ggtatatttg tcttgctggt cctcatagat actatcgttt tgactaaaac tgtcaacagg 120
taggtcttga gtcccccggc cttctggagt gctaggggag ttggagttag aatttacaat 180
ctgaqqaqqa tqtqaqatqq qcagataggt tgaaggcagc ggtggagggg tggggatggc 240
agcagccgca gggggcagtg ggaggcctgc agccgatttt tcactggtgg gattcaaatg 300
accatttagt gttggtggta ctctgttcgt caggtgagat attcgggctt ttttattcat 360
taaaggatca ataaactctg aatccaaaag ccgtttctga ggagaagata cagcatctct 420
actagaacat acaggagatt ctgaacggct ggtgcctgta gcattctgag acggatttag 480
ttttctagag agcactgact ccaatgaccg tctgtctant tcactgtatc caggccagtc 540
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<210> 393
<211> 379
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 57
<223> a, t, c, g, or other
<400> 393
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cagcgactga tttcctctct ttggactgaa aaattaaaca gatactaaat gatgacagtg 300
aatttagaga gggctccaag ggcttgaaag aacatgtctg ggataatatg gtgcttctaa 360
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<210> 394
<211> 462
<212> DNA
<213> Homo sapiens
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PA-0020 US
<220>
<221> misc feature
<223> Incyte ID No: 1403970F6
<220>
<221> unsure -
<222> 426, 453
<223> a, t, c, g, or other
<400> 394
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tetgatgetg aacaccece teccecacet ettecceaat ateteagate ecaageetee 120
ctggtttgct tctaggaagc tcagcaattc cctgaaaaga atgcagctca agtgactgct 180
ccactttttc accttggcct ttgcggaagg ctgtggctgg gctaccctat gcatcgatca 240
atgaggtcat atttacccag tgcttggcct agaggcccaa gacagggtca gcagtgcttg 300
ctttggctct agtttgggcg ttggttttgc agcctcagca tcagcacagg caggccctct 360
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<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2749575T6
<220>
<221> unsure
<222> 221, 243, 258, 281, 301, 324
<223> a, t, c, g, or other
<400> 395
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aatttaaatg tttactttgg attttattat agaagaaaat atcattgtaa ttataaaagc 180
cataaaaatt ggaactgtat tgtgaaatta catcaaggta ncagatttta tataaatgaa 240
cantaaaatt caattttnat ttatttaaac gtagttaaac nttggaagac aatctccccc 300
ntggggaaga aaaaaaaaa aaanccttga ataataaagc cccaaaaagcc acaccacaaa 360
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<210> 396
<211> 329
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2753531T6
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<221> unsure
<222> 166
<223> a, t, c, g, or other
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gggcggggtg gattagaggt cactctcgcc gtacagcgcc gtgganaagg acatgtagtc 180
cagagcacct ggcacggagt cggggccggt gtagggggcc atccgcgcga tqcaqtactc 240
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<210> 397
<211> 217
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2875779F6
<220>
<221> unsure
<222> 214
<223> a, t, c, g, or other
<400> 397
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gatggggtgg agagcccgcg ggagtgaccc ccacgagagt gaacgcccct cacactccca 180
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<210> 398
<211> 131
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 042222H1
<220>
<221> unsure
<222> 12, 22, 45, 50, 60, 77, 104, 106, 110, 117, 126
<223> a, t, c, g, or other
<400> 398
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ggcttngtgc c
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<210> 399
<211> 285
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<213> Homo sapiens
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PA-0020 US
<220>
<221> unsure
<222> 112, 117, 133, 240, 260
<223> a, t, c, g, or other
<400> 399
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gtttaggetg gtgggecagg geagtggeca ggagecagaa atgecataet gneecantgg 120
qaccqgtcgt tqnaacccat gcagacacga gtggtcggga gacttcagaa qccttgcttc 180
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<210> 400
<211> 512
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 149812T6
<400> 400
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acaaaaccgc tcaaaacttt gtaattgtga ctcatgcaaa taccttgtta ggtcaactta 180
atattacaaa tactgcatca gctcggtacc tttatatccc ttttcataaa aaagaaattc 240
tcactccact cctgaagcca gcaaacagct ctggaggaat tacctgtaca cccaagtgcc 300
acggtcactc tggaatttta atacacacac acacacaccc ttactcatga acatacacat 360
tttacaaaca cacaatggtg tacacacaca cacacacaca tccacacaca ccccatcttt 420
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<210> 401
<211> 592
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 182514T6
<220>
<221> unsure
<222> 320, 352, 426, 428
<223> a, t, c, g, or other
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agctatttat cctctctgaa ggtttctgta cctgagaaat gggcacttcc atgcccacct 240
ctcaaggata ctgtgaggag ccttgcccag agcctggtca tggtaggagc atgtcagttc 300
atccqcctaa aqaaacaqan tccaqqqcct taqqctqqct caaqqqqcaq anqaaaaqac 360
aatgqcaata agaacctctg qagcttaaac caaaccactg atgccaggga gccagccagc 420
caccentnee tgetgeagtg tgtgaeggga cacaeagatg eeeetgegee eggeteetet 480
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<213> Homo sapiens
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ctttcaatat tttctccaaa tgcaaagcaa aaacagaaca aaaaactttg aaactttaaa 180
tcttctttca aacaatccaa tcacatttac agaagtgtcc aaaaagagat gatggataat 240
atcagtgcca gcactatgtc atacagcaac ttcctcatat tctttgacgg tttgtaaata 300
attttccata tcaccaaaag ttacaaaagg ttccacagtt tcctttagca agctgaagct 360
tactcttcat ttgtcaatgt gcataaaagc tgcttatagc atagcatggc gtaagtattt 420
tttaagcaat aaatggtttg agtcatctat tttgtcctga aatgctatct gtagttaact 480
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<212> DNA
<213> Homo sapiens
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<223> Incyte ID No: 516262T6
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<222> 29, 49, 75, 81, 85, 96, 115-116, 143, 154-155, 195, 330, 355, 365, 400,
<223> a, t, c, g, or other
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gatggcggag gcagnctctg gggagcagga gggaatgtgc acaqccaqcg qaqgctqcaq 240
cageettgee tetgeegtga atgteaggea gtgacaagea geaataaggg aacagagggg 300
gtggcagcag tgtttggcag ctcttcagcn atcttaatca taaattcggg taggntccag 360
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caagtgaccc catcaaatga agtgaatgac attagactgt ggcagagtaa accacatctg 300
gattgctttc tataattcac cagtttgcag gaagtaaaca ttctttgatt tgttcataat 360
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<211> 511
<212> DNA
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gttttgtggt gcctgatgaa gaaaagaaaa gggtggtctg cacagaatct tggctccatt 180
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aaaggctcca agtcataact ctcctccagc tttaatctgg gaaggaaaac ttgaacctta 420
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<212> DNA
<213> Homo sapiens
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<222> 144-145
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agactgtttc aaatgttctc tacatattgg gctgaaacaa gaaccaaacc aaacttcaac 240
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<210> 407
<211> 347
<212> DNA
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PA-0020 US
<213> Homo sapiens
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ccagaatcca tttcatcctc ttctgagttt tcttcatcgt cctggtccac ttcccgctgc 240
tgggattcct ggcgtttcag tttcacatcc atggcttcat taattaagtc tcgcagtatt 300
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<211> 227
<212> DNA
<213> Homo sapiens
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<221> unsure
<222> 101
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<211> 336
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<213> Homo sapiens
<220>
<221> misc feature
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atcaagaaac cccgatcaca aagntacgaa tctcntnagg gggnngaccc caagttnctg 180
aggnacatgc gctttgccaa gaagcacaac aaaaagggcc taaagaagat tcaggccaac 240
aatgccaagg ccatgagtgc acgtgccgag gctatcaagg ccctcqtaaa gcccaangag 300
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PA-0020 US
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<222> 360, 410
<223> a, t, c, g, or other
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tcacgagaca tccatttact taatcacaga agtggatctt gctacatagt tttctcaatg 180
tetteattet teagattete eaggettaeg aatgteatea atetteaaaa teattetaae 240
catttgtgtt gcaagagata tctgttgctt tttgccaatc aaggtttcta tgacatgctg 300
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<221> misc feature
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cgtaaatgca aaccgcttcc aactcaaagc aagtaacagc cc
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<210> 412
<211> 349
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 295
<223> a, t, c, g, or other
<400> 412
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ttttaacttc tttcttgggc ttcttttcat agactggatt ctctcgtata gcagcatgag 180
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agaaataaag gcataatcaa aattatggct aacaacgtgg gttcattttg acacttacag 180
atgattetgt aggeatateg geaggeaega tgttgaaaac caatceaeta qatttaaaat 240
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nnnnnnnnt ggagtacaac acaaagaggg ttcaccctgg cctttcctgg gtcatgagan 240
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PA-0020 US
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<222> 97, 244
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gctttcctac cagggtagag ttccaaactc caagactgaa gtacacaaag agggggtggg 240
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<212> DNA
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<223> Incyte ID No: 1752762T6
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gccagctgaa attgttatag gtcacccgct gcacttctgg gtcgatggca ttgtggcatc 240
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<210> 418
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<211> 587
<212> DNA
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<221> unsure
<222> 415, 542
<223> a, t, c, g, or other
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caaa

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PA-0020 US
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<223> Incyte ID No: 2070387T6
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<221> unsure
<222> 234
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<222> 578, 584
<223> a, t, c, g, or other
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PA-0020 US
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  qaqqaqaaaa cqqaatctaa tcaqqaqqtt qctaacccaq aacactatat taaacatccc 120
  ctacagaaca gatgggcact ctggtttttt aaaaatgata aaagcaaaac ttggcaagca 180
  aacctgcggc tgatctccaa gtttgatact gttgaagact tttggggctct gtacaaccat 240
  atccagttgt ctagtaattt aatgcctggc tgtgactact cactttttaa ggatggtatt 300
  gagcctatgt gggaagatga ggaaaaacaa acggggagga cgatggctaa ttacattgaa 360
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  <211> 585
  <212> DNA
  <213> Homo sapiens
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  <221> misc feature
  <223> Incyte ID No: 2198796T6
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 <221> unsure
  <222> 561
  <223> a, t, c, g, or other
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  tgagtcatcg aaacgaaatc ttttggaaac catgctgcta tcctctggga tattctcttt 360
  gtcttctcta tcaccacagg ttccattaca ggaggattta gaagtcttgt cttcagagga 420
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<211> 305

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PA-0020 US
<222> 120, 305, 331
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cggccgacgt cacagtggat ggccctgcgt ggctgggaca cagacaggga gcaggcatgg 180
caacctgcgc cacgcagaag cagcaaggct gagcatgacc actggaaata aataaacatg 240
qtqccqacaq catctttaaa ttagtaagac gttagcacaa aaacaaaaaa gcacaacgac 300
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<211> 538
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aattacaggt ttgtaacttc aaacatcaaa agtgtagtgc atcaatttaa ctaaaaaatc 240
agtagtgcct aatatattat ctgggcatca aatttctttt tttaaatata tccagattca 300
catattttta ctcttattaa ataatggttt taaataataa tcatcacaat gtttagctac 360
ataatcccaq atctqqatta aatcatqqtg atatcqatat ttttaaattc caatttattt 420
qttaatcaqt aaaatqtaat aqqtqataqt qtqtccagaq atgagcctcc tatgtgtgga 480
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<222> 9, 87, 328, 330
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ctattgtatt taacggtaca gtttcattta tcaagtgttt cccattaatt ccattattag 240
tgacagetaa caagtgacce catcaaatga agtgaatgac attagactgt ggcagagtaa 300
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PA-0020 US
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gtatttaaga aaaccatttc ttccttcttt ctccagccta atttctatga aaatattagt 180
gtctaatatt ttacatgacc cagcacacct tagtaaatgt aaacattcta aatgatttaa 240
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376-377, 379, 384
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<211> 521
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<221> unsure
<222> 259, 507
<223> a, t, c, g, or other
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gagcaagaag caggtgttct tgctatggat gcgctgcacc gccaagtact accgtttctt 360
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tattggactc ttagtcctct ccagggtcag ctcttatgaa gattttgcta agtctcgtgg 480
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<221> misc feature
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<221> unsure
<222> 140, 180, 190, 289, 292, 320
<223> a, t, c, g, or other
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tacacaggga aaaggaaaan gtttgccctt gtgaaaggtg tgtatcattt tttagaagan 180
cttctgaaan tctcaaacat ctgtgagtgt gctaagagcc gttacaaagg tattttatac 240
aatctatgct gagtcagcta ggagttagca ggaggctgga tgcagatgnt anaacatacc 300
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catgoagtat etectocage teetgettet tggeegeeag eegeaceege ateteeteag 240
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<223> Incyte ID No: 2747633T6
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aggtctcatg gtataattcc ttttgttgat gccagtgaca ggattttaaa agctacattc 180
cattaaaaat taaaaataca gcagcttttc caggggaact agatcccaaa attgtaccca 240
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agtattettg acaaccacag tgtaagaaat taaactttgg ctaattgttt teeccateat 360
gaaatcagtc ttttgctgtc ttcataaata aattatgacc aaacattaca aatactttat 420
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<223> a, t, c, g, or other
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gccaattcct tcgatttctc atttcccttg aagttagggc cattcacagt ttcatggtca 180
aagccagttc caggttcaat agtctgtgat ttatccaggc tctgaggtat gcaccgcttc 240
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agttctggcc aagtctggag ctttcttcac actcggctct nagagctcnn ggttnagaaa 420
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<211> 540
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<222> 17, 28, 30, 233-235
<223> a, t, c, g, or other
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ggaagatcac ttcaaactca ataatgaggt ccccacgttt ctcgggtgtt ttnnngaggg 240
ggaggeette tecaggaact tttegeegea tgeeaggeet gataacatet ttgaataega 300
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 <222> 14, 124
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PA-0020 US
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<211> 390
<212> DNA
<213> Homo sapiens
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333, 361
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nangaaacag gttacatcat tccaattttg ccttngggtt naagagtctc tcatngtggc 240
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449
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<222> 445
<223> a, t, c, g, or other
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cccatcctca ctcccattcc tattttgaga aattttaaaa atacagaaaa gtacaaaaaa 180
taagacaaga tatccctata ccacaatcca gaatcaatca gtatcttctt atatttactt 240
gaagtctttt gaaagagaag tggatgttta tataaaaagc tgaagtcccc tttaaccaat 300
acccatccca cctcccacac tcattattt cccttctcca ctcttcacag gtgaccacta 360
tcaagagttt ggtctgtatc ttccaatccg gttcaaaaac atgtacatac atatatgcat 420
ccattaccaa tagatagtac tgagntttat gaggaacttt taattccaat ttacaaaaaa 480
                                                                   521
qtcattqtac tatctqtatc attctgcaac ttgattcccc c
<210> 451
<211> 75
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1855389F6
<400> 451
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tgaacaactc caggc
<210> 452
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<221> unsure

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PA-0020 US
<211> 442
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1905291F6
<400> 452
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attttgttaa tataaatctc tgtgaaaaat caaggagttt taatattttc agaagtgcat 180
ccacctttca gggctttaag ttagtattac tcaagattat gaacaaatag cacttaggtt 240
acctgaaaga gttactacaa ccccaaagag ttgtgttcta agtagtatct tggtaattca 300
gagagatact catcctacct gaatataaac tgagataaat ccagtaaaga aagtgtagta 360
aattctacat aagagtctat ccattgattt ctttttgtgg taaaaatctt aggtccatgt 420
ggaaggaaat ttccatggtg ga
<210> 453
<211> 606
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1968621T6
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<221> unsure
<222> 504, 598
<223> a, t, c, g, or other
<400> 453
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ctcgcatact ctccaggatg tttgggtttt tagagacacc tggtcctcag ctggggacaa 180
tggccatggc tcattacctg gccttcaggg ttcaagcagg ggacatatac ccctaaataa 240
cctaaagggg atccatcaca ctacaaccac cacctccacc gccatcatca agaagccact 300
ggctgactga gatacacttc caggaggaca agacagagtg gatgctggaa agacagggca 360
ggggaccatc accagggaaa gacttcattc ttggaaggac atcgaaccgg gggcaggtcg 420
gtagtggagc cgctgtttct tctgctgtat ccaaaagttc taactcttcg gctttctgca 480
ttttcagctc tttctttcc tggncttctc attgctggtt cctgcacacc tcccctctat 540
tectecece aatatatteg ttagtetaaa ggaaatttet tetteetatt ecceacante 600
tccaqt
<210> 454
<211> 169
<212> DNA
<213> Homo sapiens
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<221> misc feature
<223> Incyte ID No: 522294T6
<220>
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PA-0020 US
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<223> a, t, c, g, or other
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gntttgaatt cttaaatgtg caggtgcgta cagtttcact gtctctgat
<210> 455
<211> 323
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
<223> Incyte ID No: 2469208T6
<400> 455
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caggactgcc attettaaaa atataatgct ttgttggaca aaagggacaa gccacgtccc 180
ctggtcctct cctctattcg cctgtgaact ccatccacac gtaaaggacc tctgggtctg 240
actgtcccct ccacaggcat ggtgctggga aaaggaaaca ggcatatctg gctttcagat 300
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<210> 456
<211> 473
<212> DNA
<213> Homo sapiens
<220>
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<220>
<221> unsure
<222> 445
<223> a, t, c, g, or other
<400> 456
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gcttgctgac tgaggcagat gcaggtcaca cggagttcac tgatgaagtc tatcagaacg 120
agageegeta eeceggggge gaetggaage eggeegagga cacetacaeg gatgegaaeg 180
qcqataaaqc aqcatcaccc aqcqagttga cttgtcctcc aggttgggaa tgggaagatg 240
atqcatqqtc ttatqacata aatcqaqcqq tqqatqaqaa aggctgggaa tatggaatca 300
ccattectee tgateataag eccaaateet gggttgeage agagaaaatg taccacacte 360
atagacqqcq aaqqctqqtc cqaaaacqca agaaaqattt aacacagact gcttcaagca 420
ccqcaaqqqc catqqaqqaa ttqcnaqacc aagagggctg ggatatgctt ctc
<210> 457
<211> 605
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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PA-0020 US
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<221> unsure
<222> 7, 310, 314, 405
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tatcaacttg ggggcttcct gagaatgtca gattgtggat tgcaagagtc aaaaagagat 120
tttccagtcc aacctaccca ctggacagat gaggaaactg tggctgaagc gagggtgggt 180
gtctgggagt aggaagggg tgtgggccct ggcggatggt gctggagcca ccttgcagcc 240
accacctggg cacccctgg ccctgccctg gtcctcccta tcatggctgc tgttggtact 300
ggetetetgn geengttaga agteateeag caeactetgg atgtattega aggteggeeg 360
ctcctccgga cggtttttcc agcagcgcat catgatgttg taganctcct ctgggcagtt 420
ctctgggcga ggcatccggt atccacgctc cagagctcgg atcacttcag ggtttgacat 480
ccctgggtaa gggatccggc cgtaggtgac gatctccatc agcaggatac caaaggacca 540
gacgtctgac ttgatggtga aggagccaaa gttgatggct tcaggagctg tccacttgat 600
                                                                   605
qqqqa
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<211> 400
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 133, 182-183, 374
<223> a, t, c, g, or other
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gagaagggga ganctgcaag gtggagcgat tctgagggct gaaaatccct ttcccagtac 180
gnngacagea teetteaate eegecagete atgtgeatet gagggtgggg etetgtette 240
atgctagaaa ccaaactgct ctcacagctt cctgctaaat caccacggct aacggataag 300
cagagacgga ctatccagtc tgactactgg gcactcaagt cgtcagtcca gtggctaccc 360
                                                                   400
gggaacgggg gcanacagtg tgcgtgcacg tctacggggc
<210> 459
<211> 416
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 145, 266, 331, 352, 355-356, 376
<223> a, t, c, g, or other
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<213> Homo sapiens

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  tototageet geateacate tetgntaatt eecaaaaeet taateaaagg tetettatgg 180
  tccagggaaa tgtaatattt aacttcttct gcagctcatt caactcctga tactcctttt 240
  catcaaagtc tttgatgcac tcatcntcac tggtgtaagg acactgttct ttttcaatca 300
  ggtcttgtag ccaggagata gcgtattcca nacacgtgac atttttacca gncanncgaa 360
  aagttqctga ttctgngttc ttttccaaaa ccaaatgatt ctttttttgg ggagat
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  <211> 443
  <212> DNA
  <213> Homo sapiens
  <220>
  <221> misc feature
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  cagggcagca cttgaaagag gttgatgtga aagtctcggg cgtgagcagg tacctgcttt 120
  tqccqcttct qqtttttqca qacatccact actccccaqc tqattacacc aacttgaatg 180
  aaacqacttc tcttqtqaac tatcaaqqqq ccqccaqaat cacctctqca aqtattqqqq 240
  tcaqcataqq qactcactcc tccaqtacaa aggaaccqaq gggtgaccac ctctqagatg 300
  teettgaett tgteatagee tggggeatat tgageatete teteacaget geetttetta 360
  tocccattot tgatgtagac etecttocga gtoagttttt etectoetca gacacaaaca 420
  qaqctttgat atcctgtgca ggg
  <210> 461
  <211> 430
  <212> DNA
  <213> Homo sapiens
  <220>
  <221> misc feature
  <223> Incyte ID No: 1929583F6
  <220>
  <221> unsure
  <222> 215, 282, 297, 328, 357-358, 377, 380-382, 402, 410
  <223> a, t, c, g, or other
. <400> 461
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  cgcccacaga tggtttggcc ctgcagtgac cagagcagcc caagccgcca ccatggtgaa 120
  attgctagtg gccaaaatcc tgtgcatggt gggcgtgttc ttcttcatgc tgctcggctc 180
  cctgctcccc gtgaaqatca tcgagacaga ttttnagaag gcccatcgct cgaaaaagat 240
  cctctctctc tgcaacacct ttggaggagg ggtgtttctg gncacgtgct tcaacgntct 300
  gctgcccqct gtgagggaaa agctccanaa ggtcctgagc ctcggccaca tcagcannga 360
  gtaccegetg geogaaneen nneteetget gggetttett entgaceggn tteetggage 420
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  agtgatcctg
  <210> 462
  <211> 465
  <212> DNA
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PA-0020 US
<220>
<221> misc feature
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<222> 394
<223> a, t, c, g, or other
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tacttgttcc tggaacttac aaccttacag tagttttaac tgggtatatg ccattgactg 180
ttactaatgt agtggtgaaa gaaggaccag ccacagaggt ggatttttct cttaggccaa 240
ctgtaacttc agtaatccct gacacgacag aggctgtatc aactgctagc acagttgcta 300
tacctaatat tctttctgga acatcatcct cctaccagcc aattcagcca aaggactttc 360
accaccacca tttccctgat atggaaatct tctngagaag gtttgccaat gaatatccta 420
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<211> 531
<212> DNA
<213> Homo sapiens
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<221> misc_feature
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<220>
<221> unsure
<222> 53, 97, 329, 413
<223> a, t, c, q, or other
<400> 463
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totgcctcct gctccactga ctggctcccg tacgcactgt cttccttcac ctctgtgctg 240
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tcagacaggg cctccagtag acctgccang tccccgccag ccagctcgta gctgcgcagg 360
aggetgecae tggqtgaggt tgtctgtegg taegtgteta ceaggetgeg caneceagae 420
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<210> 464
<211> 498
<212> DNA
<213> Homo sapiens
<220>
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<221> unsure
<222> 16
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<223> a, t, c, g, or other
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atagctgtac ttcttgaata taaaaaatca tgccagtatt tttaaaaggca ttagagtcaa 180
ctacacaaag caggettgee cagtacattt aaattttttg geacttgeea ttecaaaata 240
ttatgcccca ccaaggctga gacagtgaat ttgggctgct gtagcctatt tttttagatt 300
gagaaatgtg tagctgcaaa aataatcatg aaccaatctg gatgcctcat tatgtcaacc 360
aggtecagat gtgetataat etgtttttae gtatgtagge eeagtegtea teagatgett 420
qcqqcaaaaq qaaaqctqtq tttatatqqa agaaaqtaaq qtqcttqqag tttacctggc 480
ttatttaata tgcttata
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<211> 558
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<221> unsure
<222> 515, 536, 539, 554
<223> a, t, c, g, or other
<400> 465
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cattcaagtt ttttctttcc ttgtctgtaa tttgttctat ctacattatt gtgaatttta 240
actgatataa aacaaaatta aaacagcatt attgtgttca gtaacttgca agctgaaatg 300
cactggtttt atacaaactt ggacattttt ttccccatac agtacccaga tattgcattt 360
tcttatggca ttttaggaaa tgtaaagcca cttgtaaaag gatattcttt tattcttttt 420
taaagcagta tatatttctg aagcacactt tgggcaagag agaagggcaa ggataagccg 480
ttgtacagtg cattagtccc tggtctcttg gatantgagc cttttctggc aatttngant 540
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<211> 437
<212> DNA
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<223> Incyte ID No: 1738538T6
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<221> unsure
<222> 196, 206, 229-230, 239, 243, 252, 255, 265, 267, 299, 302, 306, 318,
346, 350, 391, 394, 422
<223> a, t, c, g, or other
<400> 466
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aggttccaag tccttcgtgc tgctcttggt cattcagtga ctgcagtttt ggcccagaag 180
ccatccaaga tgagcnagtg ctgagncatc cttaactcat acctagatnn aacaacttnc 240
gengaaacge tngtnetece cagtnanece ttagcateat attecaatae aggaaaggna 300
tnaggncagc tttcatgnga tacatggaaa ggcgctcttt gctttnatcn aaggggaagg 360
tttctagcgg tctgctttgt agtcaaactc ngcnagaatc acacggttgt agccggtcac 420
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cngtggacat gatgtgt
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<211> 276
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<213> Homo sapiens
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gaagatggtc agtggcatgt acttgggaga gctggttcga ctgatcctag tcaagatggc 120
caaggagggc ctcttatttg aagggcggat caccccggag ctgctcaccc gagggaagtt 180
taacaccagt gatgtgtcag ccatcgaaaa gaataaggaa ggcctccaca atgccaaaga 240
                                                                   276
aatccaacta atggtatata ttgtagggta cagaat
<210> 468
<211> 424
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 381, 386
<223> a, t, c, g, or other
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ccqqtttggt qctggtgctg gaggcggcta tggctttgga ggtggtgccg gtagtggatt 180
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<213> Homo sapiens
<220>
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<223> Incyte ID No: 1823789T6
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<221> unsure
<222> 472
<223> a, t, c, g, or other
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gtttatgttg tctgctattt tctattatag gtttattcaa agagaatatc acctatagca 180
taaataatta aatttttcaa taaaaacaaa ctaaaaaaac cctagaaaca tttgacatca 240
ccaaattcaa cagctctcac tagaaatcca agcaataaac ttagatattt gaaataaaca 300
taaattatga ttatataact ctaagtcaca tacataattt tgaattatag taatagcact 360
gtaaacatga atacaaagga ttacagtttt atacagaatt ttttttgttt ttcttctttt 420
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<211> 448
<212> DNA
<213> Homo sapiens
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<222> 181, 259, 374, 392, 417
<223> a, t, c, g, or other
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ccttaaqcct qqtccccata cacaqcqctq aaqtqqcaqt tccaqcqqct qtccctqcgg 180
nagaggetga ggccgaggtg acgetgeggg agetecagga agecetggag gaggaggtge 240
tcacccggca gagcctganc cgggagatgg aggccatccg cacggacaac cagaacttcg 300
ccagtcaact acgcgaggca gaggctcgga accgggacct agaggcacac gtccggcagt 360
tgcaggagcg gatngagttg ctgcaggcag anggagccac aggtccctag gcctggncta 420
                                                                   448
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<210> 471
<211> 422
<212> DNA
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<221> unsure
<222> 42, 47, 58, 130, 288, 307, 317, 361, 405
<223> a, t, c, g, or other
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ggtgtgagan gatcgtatgc catcttgtac tctttatcaa aagcatctat atcaatgttt 180
tctcttccca gtgccacaag tgagagaaat agtatttctc tgtataaact cctctgtctt 240
ttaaaatqtq qacacttatt caqtqtctct aaaatctgac tcattggncc atagacatca 300
ttcattntaa tgctttntac catacttttc aacagttcct ggttaaatga gttatcactt 360
ntttgcaata aatggaccat tggataattc tgggtgcgag cactncagag aatgcacaag 420
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<210> 472
<211> 257
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2697170T6
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aaaagcccac attctatcac agtgatgtat ggtcagactt aacagcccca attgttaaac 180
acttggatca agtcataacc agttttattg caaaaggacc ctgtacacat ttatcaactc 240
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<210> 473
<211> 257
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2605603T6
<400> 473
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caaacgacac gaccaaactt ctaaagtatt ggtattacat cttaaaattg tcccgtatcc 120
ttaaaaaaaa aaaaagtgta cactcacgtg ccttacagga tattaaacca aaaagctaga 180
attaacaaac atgccaaatg ttttcacttt gaatcgtaga cacagctcct atatttgagt 240
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<211> 518
<212> DNA
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<221> unsure
<222> 484, 496
<223> a, t, c, g, or other
<400> 474
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teteaattae atageaattt eteetteeea eeateatggg gaagetgget etgettttge 480
cctttgtcat caccaacaca acagatagaa attaaatata agtataatgg gtgtgcgtgt 540
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<211> 568
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PA-0020 US
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<222> 432, 469
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316, 320-321, 328, 335-336, 343, 346, 371, 381, 392, 407, 420
<223> a, t, c, g, or other
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tacagnanca tatgtnagan nccagagnat aatcnnaatc ttncancctc tgcatacact 360
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<211> 230
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PA-0020 US
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cccaccacan tttctgcaca caatgaggcc tgctgggaga agagaacatg aatgggaagc 180
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<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 1686561T6
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<221> unsure
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aagcactgag aggcccagaa tggacacatc aaactgtcag gaggaacata tgggacactg 180
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cqqtqtcaca aqqqaaccac ctgaaaggtn ggcagaggcc cccgtggagg agccacatac 480
tettentete teageageeg eageaggatg ttttttttat ettgggeeag etgtagaeat 540
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atagaaataa tqqaactcac aggaagaaac agtattgata acatacacag gcttacagag 240
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<210> 482

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PA-0020 US
<211> 533
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tgagggcctc gagggctgct gcctcgactt tctccctagc taagtccacc cgtccaggga 180
cacagocagg gcactgotot gtgotgactt ccactgoago caagggtoaa aatgaagoat 240
ctgcggaggc caggactcct tggcatcgga cacagtcagg ggaaaagcca ccctgactct 300
gcaggacaga gggtctaggg tcatttggca ggagaacact ggtgtgccaa gggaagcgag 360
catgatttct ggagtggact acatgcatgg tctggagttc agtaaactgg aaagtttcac 420
ccccaagtct taatttaatc aaaattgctg aactctgttc aatcttcatt gttaaaagca 480
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<220>
<221> misc feature
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<221> unsure
<222> 275
<223> a, t, c, g, or other
<400> 483
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tttcaagtat gagtgttaag aattagaaaa gactatcata agctttaaca ttctaaataa 180
taagtaattg aattatttca gtttagttac acagcatctt ttaaagtcca tctttgcaaa 240
ttatacqttq ctataaatac attqtqtatt tqqcnttatq tqaatttqtt taatccaqtq 300
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<221> unsure
<222> 417, 484
<223> a, t, c, g, or other
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<213> Homo sapiens

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cattgtagtt tttaaatttc tacagcctag agctcactag tcacaggtct tttaggtcct 180
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gcttctggtt gataacgctg gttaatcccc gggcattgag gatacatgga aggctcagga 300
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gtatatcctt ttagcttgat gacttcatag gcactttcaa ccaccatctt atgcacttcc 480
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<211> 470
<212> DNA
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<221> misc feature
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<221> unsure
<222> 9
<223> a, t, c, g, or other
<400> 485
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gggccatgtg gggggaggac tctgagactg accacttggc tggtaacttg gctgtccagt 180
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gaacttggat ccaatgacag ccttgatgtg gtcgaagtga tctgccacag tggacacatt 420
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<211> 242
<212> DNA
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<220>
<221> misc feature
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agggaaaaga ttgacaaaga aatagagctt cacagaattc ttcatcataa gcatgtagtg 180
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<210> 487
<211> 431
<212> DNA
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PA-0020 US
<220>
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aggaageetg etgttgttet tetecateee attteaceeg eagetagtgg etaaaetetg 420
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<222> 303, 318, 344, 403
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genataacgt atgagggnat ttttaacact gtgaagtaca cacntaatat tataaaatgc 360
catttaattg gaaggagttt ctatcattgc aagtcataaa tgnaactttt taaagatact 420
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<221> unsure
<222> 436, 442
<223> a, t, c, g, or other
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tacaqtqaaa ataataqcct ctggaaaaag ctttgaaaat cagagatggt gccatcacca 180
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cacaacccga gagcacattg ttatttgttt attttgtaca agtgatgtca taagcaagga 360
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<223> Incyte ID No: 1747645T6
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<221> unsure
<222> 451, 472
<223> a, t, c, g, or other
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<211> 357
<212> DNA
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<220>
<221> misc feature
<223> Incyte ID No: 1862007F6
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<221> unsure
<222> 294
<223> a, t, c, g, or other
<400> 491
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cctgtgtgca tgtcagggct cggccgggaa gaagccagca aagtcccccg tgtnccttgc 300
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<211> 403
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PA-0020 US
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gtggtcaagg ctacagatgt gctgacaagg cacttcatgt aaagtgtcag aaggagctac 360
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<221> misc feature
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<211> 249
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2326622T6
<400> 494
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aaaattottt tataoggoat ataogogaga tgcaaactto tgatgtaaat ttgtttcact 180
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<212> DNA
<213> Homo sapiens
<220>
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<223> Incyte ID No: 2452694T6
<220>
<221> unsure
<222> 37, 123, 139
<223> a, t, c, g, or other
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<211> 199
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<211> 500
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<222> 297, 348, 350, 352
<223> a, t, c, g, or other
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PA-0020 US

<211> 347

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 taggaggtgg ctctgctctg ttctggggtt ggtccaaagt caggtggagt tccattntat 300
 gaaaagcttg aaaaatctac cttaaggaga ctgaatatca ataccagnan cntctagagt 360
 tcttgttgaa ttttcacaga aatactggaa ccctcaaaat cagatagtaa tttcaaacaa 420
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 <222> 18, 423, 433
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 <400> 498
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 gggaaaggga aaaaattggc agagaaagtc tagactctct ggcctaccat ggagcctagg 180
 cccaggccc caagatccca ccttccccaa cccccatggg actggagatt tttgtagctt 240
 ccattggacc atgaggggca tgatgggagg cctgagttag ggtgaccttt tttgtgagcg 300
 tctcatttga attttatctt cactgggtca tagatgtagc agcccacatc gccaatgttc 360
 acacctttgg ggccaaacag gtagccgtag caggggacgt ggcagtaggg gactccatca 420
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  <211> 471
  <212> DNA
  <213> Homo sapiens
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 <221> misc feature
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  cctttgcaaa taattaagtt ctctcacttt aaatatcgta attcactggt cttcataata 180
  aataattata ataatatata aaaggagaca gtggcctgaa ttattttgca gagaacattt 240
  cacacatett ttaaaaaaaat cactaaaeta eeacaaetta aaaettgtaa gaataattag 300
  gtaagagtta ttgtaatatt gaattaatat agcacctaga aatttgaaat ttgtaatatt 360
  tcagatgata tgatttactg agaaaaagag taatgatttt cttcagtgaa ttttcagggg 420
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PA-0020 US
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ggaaaagaag tcaacccagt gtttccactt tccatgaagg acttctcaag ggcaaggtaa 180
taagcaggaa taaagcttcc aaaaacctgg aaggactctt tcaggtggac taataagcat 240
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<210> 501
<211> 209
<212> DNA
<213> Homo sapiens
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<221> misc feature
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qaqcaqactt ctttacaaat gggatctgtt tctatatgtg tatatgccca cttaccattc 120
agagagactg gtctttctct ttgtcttcct tcacattgct gtgtcagttc tacacctagt 180
                                                                   209
cttttcagca cttagcaaat tcaaatttt
<210> 502
<211> 513
<212> DNA
<213> Homo sapiens
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<221> unsure
<222> 486
<223> a, t, c, g, or other
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aaagagagtc caatacacaa gtgtcaaata tgagcactgt cattttttt ttcttagaag 180
ggggaaaaac atttattttg gcagtgcttt gacaattcca ggaagtggtt ttgatactac 240
aagttgcagg aatagaaacc ctaacaaact tggagggcat ttgtttgaga ggcaagggac 300
gccttgctta gaaaacattc ctcttgtgct tagtgaatca cctatcgcct cggtgggctg 360
ctgtgtcttt ccaggtgctg aaagagaaaa cggaatttct tgcatagaca gctgaagagt 420
cctgtagagc agagtgattt ttgtatctcc aaccctcctc cccaacttga aacaaattct 480
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PA-0020 US
<211> 430
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<213> Homo sapiens
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<221> misc feature
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<221> unsure
<222> 245, 389
<223> a, t, c, g, or other
<400> 503
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actocotget gttcgacccc ctgtcctcct ccagcagcaa caaggagcgg gtggtcactg 120
tgattgctca tgagctggcc caccagtggt tcgggaacct ggtgaccata gagtggtgga 180
atgacetgtg getgaaegag ggettegeet eetaegtgga gtaeetgggt getgaetatg 240
cgganccacc tggaacttga aagacctcat ggtgctgaat gatgtgtacc gcgtgatggc 300
agtggatgca ctggcctcct cccaaccgct gtccacaacc gcctcggaga tcaacacgcc 360
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<211> 195
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<221> unsure
<222> 63, 124, 148, 164
<223> a, t, c, g, or other
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gancttgcat gaggaggagc atgicctgct catggccatc tgcatcgict ccccagatc 120
gtcntggggt gcaggacgcc gcgctgantg aagccatcca ggancgcctg tccaacacat 180
qcaqacgtac aatcc
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 <211> 235
 <212> DNA
 <213> Homo sapiens
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 <222> 52, 75, 97, 102, 119, 138, 141, 223
 <223> a, t, c, g, or other
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ttggcaagag cgcaaaantc nagggaagcc aggctggagc tgctgtgtat agactgccaa 180
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<210> 506
<211> 203
<212> DNA
<213> Homo sapiens
<220>
<221> misc_feature
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<400> 506
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gettecetgt taaageteta eeteegagae eteecagage eegtggttee etggageeaa 120
tacgaagggt teetgetetg tgggeagete acgaatgegg atgaggeaaa ggeteageag 180
                                                                   203
gagttgatga agcagctctc cat
<210> 507
<211> 132
<212> DNA
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<221> misc feature
<223> Incyte ID No: 1709659T6
<400> 507
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gtgagctctg ag
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<210> 508
<211> 425
<212> DNA
<213> Homo sapiens
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<221> unsure
<222> 140, 153, 247, 419
<223> a, t, c, g, or other
<400> 508
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cccaccaccc gttaggaatg tecattectg ggctgcgtgc gcaggtccag cagccagtet 120
gtgcaggctc ctggtccggn cagggagatt gangcagacc cccacaagcc ctgaacccca 180
qtctcaaqtt ttctqcacqa cctqtacttc aqtcaccaqa cactcctcca qqccqqcttt 240
qcccqcntcc cagaccacca gettqtcqtt ttqqaaqctq tcaccqatqq qqtctttcat 300
gtgagggatg cggggaaaga gtctctgcat caccagatac cttctgcaga tcacgaagac 360
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gctttcgtct tctc

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PA-0020 US
acagaccagg gccagcagcg tececagege gateageage gaegteegee aggeaegtnt 420
gtttg
<210> 509
<211> 495
<212> DNA
<213> Homo sapiens
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<223> Incyte ID No: 1852712T6
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gettacacet geaggteeet taccetagaa acactetata tettettagg tactteeett 180
gaaacaggat gagttctaga ggaaataaaa ctgctgcact tacaaaccta gaaatattca 240
gggaccaaga ttagttgttc agtgacctag gaaaccttag aatcctgtag gttcctcagg 300
agaggtgctt ccaagtactt gagaatccac aggcagagat gcttcccttt ccatggtgga 360
tgtgtatgtc actccaggac aaactgcgga gtcacggagt gtgggaacac atctggttgt 420
gtacagtaca ctatcccaga ggaaaatcac caaagcaaca caactctgca gcaaaaaact 480
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<211> 106
<212> DNA
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<210> 511
<211> 494
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 2449112T6
<400> 511
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gagggtacag ggcggccccc agcaaggccg ttcattgtcc atcgagagct tetgetcate 120
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ccaggcctag ggcggggttg gcatgagggg caggggctgg gaggtgctca ggcagcctgg 240
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 tggacacatg tgggcacctt gcatcggggc cgggtgactt caagggctgg ggactatttg 420
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494

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PA-0020 US
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<211> 502
<212> DNA
<213> Homo sapiens
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ctgctcagtg gctgagccct gtggccagct gtgccctgtc tcttcccctg cccccagtca 180
qqqcatccaa cggggcagag gcagaaggga cgtgaaaagg ggggtcggtt tcagcaaagc 240
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gctcagggcg cctgggctga cttcaggatg tgtccatgtg gttatcagag gaaagcgatg 360
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<211> 320
<212> DNA
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<223> Incyte ID No: 2855766T6
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tttcagcatg taggtagcta cactgtaatc ctgttgaaga aactttccta tttaagctta 180
taggatgaaa atatataatt aaagtettet gateataget tgagaceate aagggaatgt 240
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<210> 514
<211> 107
<212> DNA
<213> Homo sapiens
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<223> Incyte ID No: 3034487T6
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<221> unsure
<222> 36
<223> a, t, c, g, or other
<400> 514
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ccagacacta cttttaaaaa cccggtagtc acacataaac agcatga
<210> 515
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PA-0020 US
<211> 304
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<223> Incyte ID No: 3334413F7
<400> 515
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tggagggett tetgttgcat gggetettge eageteatgt catteggttg etgettaage 240
ctcatgtcca ggcccagcag gacttgcagc tgttgctgga gctgctggag aagatgggat 300
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ctgt
<210> 516
<211> 452
<212> DNA
<213> Homo sapiens
<220>
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<220>
<221> unsure
<222> 442
<223> a, t, c, g, or other
<400> 516
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gaaaactgta gctaggcagc tcccgtcctc agggactcct gccacagacg tcatggagac 180
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ccaggctctg ttgcgagaca gccatcactt cctgttcttt gcaggtgcct aaggtaggtt 300
acctggccaa ggttttggtg gaaaaaatga gttttttcaa tgttgcaggt cttttaatag 360
ttcatctgta ggaagtgcat ttgcaaagtc accaacctgc agcttccatc tgtagaccag 420
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gaagggtgat tctctgggtg ancacagcgg gg